THE INFLUENCE OF CONTROL MECHANISMS ON URBAN FORM: SOME URBAN DESIGN IMPLICATIONS

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Thesis presented in partial fulfilment of the requirements for the degree of Master of Town and Regional Planning (Urban Design)

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DECLARATION

I the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

ABSTRACT

The urban designer works within an environment characterized by constraints. Control mechanisms are part of these constraints. They were created out of necessity because the control of the urban environment became strained as cities grew in size. In the beginning control mechanisms regulated the urban environment to create better public safety. This objective evolved to include aesthetics and sustainability of the environment. Controls, however, tended to become standardized and were often blindly applied irrespective of changed circumstances and contexts.

Control mechanisms include *inter alia* height, density, bulk, and aesthetic controls, which can be applied to regulate form, space and behavioural or activity patterns. These control mechanisms generally embrace a system of codes embodied in legislation enforceable in law. Urban designers should realize and take full advantage of the potential of the law as an urban design control element.

This study examines the nature of control mechanisms as applied to town planning in general and urban design in particular and their efficacy in achieving and maintaining a range of human and social objectives. To this end, attention is paid to examining historical precedent, examples reflecting different cultures and approaches and resultant urban forms. On the basis of the aforementioned this study aims to identify a range of urban design principles and to propose suggestions as to how control mechanisms as part of a system of law can best be applied.

A case study of central business district sites in Durbanville, Western Cape is researched.

OPSOMMING

Die stadsontwerper funksioneer binne 'n omgewing wat gekenmerk word deur beperkings. Beheermeganismes maak deel uit van hierdie beperkings. Dit het ontwikkel uit noodsaak, want die beheer van die stedelike omgewing het onder druk gekom soos stede in grootte toegeneem het. Aanvanklik het die beheer-maatreëls die stedelike omgewing gereguleer om sodoende openbare veiligheid te verseker. Hierdie doel het egter ontwikkel om estetiese ontwerp en volhouding van die omgewing in te sluit. Maatreëls het egter geneig om gestandardiseer te raak en is dikwels blindelings toegepas ongeag die omstandighede en konteks.

Beheermeganismes sluit *inter alia* hoogte, volume en estetiese kontrole in wat aangewend kan word om vorm, ruimte en gedrags- of aktiwiteitspatrone te reguleer. Hierdie beheermeganismes omsluit gewoonlik 'n stelsel van kodes wat vervat is in wetgewing, afdwingbaar deur die wet. Stadsontwerpers behoort die potensiaal van sodanige wetgewing te besef en tot hul voordeel te benut as 'n beheer element in stedelike ontwerp.

Hierdie studie ondersoek die aard van beheermeganismes soos aangewend in stadsbeplanning oor die algemeen en stedelike ontwerp in die besonder en hul doeltreffendheid in die bereiking en handhawing van 'n reeks menslike en sosiale doelstellings. Aandag word in die studie gegee aan die ondersoek van historiese voorbeelde, voorbeelde wat verskillende kulture weerspieël en verskillende benaderingswyses en gevolglike stadsvorme. Gebaseer op die voorafgaande, wil hierdie studie 'n reeks van stedelike ontwerp beginsels identifiseer en voorstelle aan die hand doen hoe beheermeganismes as deel van die wetgewingstelsel, op die mees doeltreffende wyse aangewend kan word.

Persele in die sakekern van Durbanville, Wes- Kaap word as gevallestudie nagevors.

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CHAPTER 1
INTRODUCTION AND AIM OF STUDY

The urban form has been influenced by a large number of factors over many centuries. These include physical, economical, social and legal factors in concert with control mechanisms pertaining to *inter alia* land use, density, height and bulk of buildings and public rights of way, which have been applied to regulate form, space and behavioural or activity patterns.

Kevin Lynch (1990:487) writes that many attempts have been made in history to control the appearance of the city. Most often these have failed except in a few instances carried out by and reflecting strong central authorities. By and large many beautiful old cities are the product of restricted technology or social custom giving rise to a well defined vernacular form rather than through conscious design. Today those historic constraints have little controlling force and many of our present control systems have in reality gone wide of their mark, or broken down under the often divergent forces reflected in the market, political conflict and time pressures. Other attempts at control have often succeeded in stifling design innovation, for example the ziggurat form of skyscrapers in New York City built in 1916 according to the new zoning laws that were enacted.

1.1 Urban Design

Definitions of urban design tend to focus on design as a process, emphasizing ways of working conceptually, analytically and creatively with the view to problem-solving and taking cognisance of the need for collaboration between

professional groups, clients and the community. One of the most useful conceptions of the process of design is Kevin Lynch's four modes of design action: **diagnosis** (analysing the spirit of the place, including pattern of use and the meanings attached to the place); **policy** (developing principles of quality development and management); **regulation** (codes and standards to execute policy and their negotiation); and **design** (the development of a specific form) (in Punter & Carmona,1997:83).

This is a particularly helpful definition for those concerned essentially with design policy and control because it stresses four distinct activities: the analysis or appraisal of places, the development of design principles, their translation into design codes or standards, and their execution in an actual design. In this study the focus is on the third mode of design action namely control or regulation. It is important though to always keep the other modes in mind and not to isolate regulation as a means in itself, but to recognize its importance as part of the broader process of urban design.

According to Spreiregen (1965:181) the missing link in regulatory practices is the full appreciation of what urban design should embrace. Although our current measures attempt to control the city's appearance, these have failed to inject design into the rules of city building through for example, the inclusion of clearly articulated design goals. Currently there is an increased focus on urban design principles and the range of control measures available to the urban designer or planner in the creation of well designed and sustainable environments.

Kostof (1991:13) writes that a city is never static. However perfect its initial shape, it is never complete, never at rest. This fact gives the planner the opportunity to direct the urban form to the advantage of the people who live in the city at any specific time through the adaption of the old and the creation of the new appropriate forms. It follows that we must constantly be aware of changes in

all sectors, be they economical, physical, social or legal and respond accordingly. The latter is emphasised by Hilbersheimer (1944:167) in his belief that:
"The objective in the art of city planning is the creative use of the city's elements. Its basis is spatial feeling, expressed according to its era. The city planner has but limited means of expressing artistic aims. The more clearly these means are recognized, the more effective can they be related to particular tasks; and the more completely they are mastered, the more constructively can they be employed to achieve satisfying results".

The urban designer works within an environment characterized by constraints. However, as stated above, the designer should of necessity learn how to work and design within these limits and to use the limits to his or her advantage: most importantly the designer should fully understand the nature of these limiting factors.

1.2 Control Mechanisms

To this end this study looks at the history of control mechanisms as well as their current use, in order to better understand the influence these have had on generating good, bad and at times inspirational urban forms and to better understand how these mechanisms can be used to our advantage. These control mechanisms generally embrace a system of codes embodied in legislation enforceable in law. According to Lai (1988:8) urban designers have yet to realize and take full advantage of the potential of the law as an urban design control element. His view is as follows:

"Control mechanisms must be creatively wielded by the urban designer or planner as a deliberate instrument to create an urban environment that suits the needs of the inhabitants. Only with an understanding of the essence of the law can the urban designer create in terms of it and use it advantageously. For the knowledgeable and skilled, the law can be an implement of design as much as

mortar and stone"(Lai, 1988:4). Furthermore he notes that urban designers should recognize the law as a historic though often indirect and even accidental "ordainer" of city form, and conceive the law as an effective and compelling public instrument for purposeful and reasoned urban design in the context of a pluralistic, free-enterprise society.

It is often difficult to fully predict what the influence of control mechanisms will be on the urban form because outcomes depend on many variables. In the past unforeseen results, some positive, some negative, have arisen through the use of certain control mechanisms profoundly influencing the urban form and in turn creating new challenges for urban designers.

Examples of the above statement are the plazas created through the use of incentive zoning in the 1960s in New York. These plazas turned out to be public spaces but with few public in them, in effect creating an urban environment with little public realm.

Spreiregen (1965:173) highlights a frequently encountered problem: "...In the maze of architectural and urban complexity we have lost sight of what should be foremost in the application of regulators: the fulfillment of human aspirations and purpose in our surroundings". The most important thing in creating urban environments is that the needs of those for whom one is designing should remain foremost in the creation process. Therefore the use of control mechanisms should always have the above objective as its goal: controls are means to an end and not ends in themselves.

By way of illustration one may cite the goals of Town Planning Schemes in South Africa as stated in, for example the Transvaal Planning and Township regulations, 1965, section 17(1): "... a town planning scheme shall have for its general purpose a coordinated and harmonious development of the area to which it relates in such a way as will most effectively tend to promote the health, safety,

good order, amenity, convenience and general welfare as well as the efficiency and economy in the process of such development..." (Town Planning Ordinance, 1965:5).

Whilst other legislation has since been enacted, most notably the Development Facilitation Act 67 of 1995, these goals have essentially been retained although broadened to include the concept of sustainability of development and the protection of the natural environment.

Without clearly articulated goals, which reflect a body of desired outcomes, such as those noted above and corresponding controls in law, urban planning and design become haphazard and arbitrary, especially in a complex society like South Africa composed of First and Third world elements.

1.3 Aim

The aim of this thesis is therefore to examine the nature of control mechanisms as applied to town planning in general and urban design in particular and their efficacy in achieving and maintaining a range of human and social objectives. To this end, attention is paid to examining historical precedent, examples reflecting different cultures and approaches and resultant urban forms. On the basis of the aforementioned this study aims to identify a range of urban design principles and to propose suggestions as to how control mechanisms as part of a system of law can best be applied.

By way of illustration a case study of a portion of the Durbanville Central Business District (Chapter 6) was undertaken and various large private developments in South Africa are noted and discussed.

CHAPTER 2
THE HISTORICAL ORIGINS OF CONTROL MECHANISMS

With reference to our understanding of the historical origins of control mechanisms Lai (1988:14) notes its values as follows: "Beyond the intellectual value of history is its practical application in refining one's perception of the present and the future. Even the most worthy venture in urban design and planning must not be narrowly conceived but should be considered in the context of history and culture and in terms of its fundamental effect on society as a whole". Through the study of the history of control mechanisms one may learn from past outcomes whether good or bad and apply this knowledge to a present situation based on a clearer understanding of the issues involved and hence creating better environments.

In light of the above a review of the historical origins of control mechanisms is essential to our understanding as to why and what circumstances gave rise to the introduction of control mechanisms and how they developed into their present forms in different countries.

2.1 Early applications of control mechanisms

According to Gallion and Eisner (1980:70) regulations over city building are not new in the annals of history. King Hammurabi codified his rules of justice in 2 000 B.C. The Greeks had regulations pertaining to the building of dwellings. The Romans established height limits for tenements and towns of the Middle Ages adopted various regulations against fire hazards and projecting upper stories.

Later, in Italy the regulating plan was introduced with a law of 1865 in connection with the rebuilding of Naples. Kostof (1992:57) cites that it established that every city with a population of 10 000 or more could, " for the sake of the common good

determined by existing need to provide for the health and requisite communications", draw up a legally binding master plan enforceable through the right of eminent domain. Unfortunately, this legal apparatus did little to curb the size of cities, either in Italy or in countries that instituted similar procedures of public review.

Control mechanisms came into existence because there was a need to control the urban environment to guarantee the safety and well-being of the people that lived in it. Later this need expanded to include aesthetics and urban design, which further contributed to a better quality environment as exemplified in the City Beautiful movement (Wilson, 1988:116). It took quite a while before people's attitudes towards control mechanisms changed and it became possible to stringently enforced them, because only with the support of the community could the implementation of control mechanisms be successful.

It is interesting that in America, Great Britain and South Africa the same kind of events – a change in economic climate – triggered the development of control mechanisms. Although the same kind of events triggered their evolution in the various counties followed different paths and advanced at different rates.

2.2 A background to control mechanisms in South Africa.

In early times, there was little need for any special controls relating to planning or layout design. The efficiency of the layout depended on the person commissioned to prepare the design and this person was usually appointed by the authorities, whether lay or religious. The latter body usually acted through a commission. Both in the towns and in the "platteland" or country, people were largely self-sufficient and land values were low. The result of this was that the problems that we experience today through uncontrolled development were largely absent. The layout of the towns together with the survey and registration of erven and farm land formed the basis for the establishment of orderly

development even though there were no restrictive conditions of title on the early lots or erven in towns (Floyd, 1960:38).

The advent of mining, firstly in Kimberly with the discovery of diamonds in 1867, and secondly gold mining on the Reef in 1886 was accompanied by a rush of speculation in the subdivision of land as well as in the creation of townships (Floyd, 1960:38). This change in the economic climate changed the way people viewed land and created the need to have legal mechanisms to control the outcome of this urban growth and development. As mining development took place so too did migration to the towns of both white and black persons. It was mainly as a result of this migration that restrictive covenants on the movement of people, particularly pertaining to blacks were introduced during the 1880s. What followed was that restrictive covenants controlling use, use by certain races and density were inserted into title deeds of property registered (Van Wyk,1999:85).

The development of towns resulted in a flow of the non-white population to the towns and the question of separation, which later crystallized into the "apartheid" policy arose. This need for control was first met in the layout of new townships by means of restrictive covenant on racial occupation, use and density. The first restrictive covenants or conditions of title as they were called were on a racial basis preventing ownership or occupation by persons of non-white race groups. Later such conditions were extended to use, density and other matters affecting the amenity of an area. The idea was not entirely new but rather flowed out of the idea of servitudes, which were imposed from earliest times in respect of thoroughfares, water furrows and water rights (Floyd,1960:41).

It became necessary to control the surface of the land in mining areas and this was provided for in the Gold Law of 1885. "The power to control and administer was given to the mining commissioner and provision was made to set aside sites for trading, industrial, residential, recreational and afforestation uses as well as mining uses" (Floyd,1960:42).

The early towns were comprised essentially of residential buildings, a church and local government offices. Later business, such as retailing, commercial and other uses arose as the variety of functions increased. As the country developed and the population became less self-sufficient and more interdependent i.e. more urbanized, it became apparent that some control of land uses was desirable.

Building by-laws were also used to achieve town planning objectives. Apart from controlling buildings' structure or soundness, they were also used to exercise control over density, height, coverage and use. The local government ordinances of the various provinces empowered the local authorities to define business streets. The Public Health Act of 1919, gave powers to control the siting of noxious trades. These methods of controlling urban development, although rather basic in nature, were of some value: restrictive covenants for example had the effect that townships so restricted in title, developed more attractively than unrestricted ones.

Although these methods served some purpose and avoided a good deal of potentially undesirable development they proved to be increasingly inadequate and too rigid, as town life became more complicated and the variety of uses increased. In consequence town planning schemes were seen to afford better outcomes and more effective control and guidance. They also prepared public opinion to accept control measures which illustrated demonstrably the benefits to be derived from their judicious application (Floyd,1960:42).

The basic concepts and intentions of all town planning schemes in South Africa are the same and were for a long period of time, during the 20th century, the main control mechanism of development in South Africa. Recently, additional measures have been introduced, which include: Land Development Objectives (LDO); Environmental Impact Analysis (EIA); Integrated Development Plans (IDP); Integrated Development Frameworks (IDF) and in the Western Cape, the

Metropolitan Spatial Development Framework (MSDF) in addition to specific design guidelines of individual municipalities.

The town planning schemes of Johannesburg and Pretoria were, together with those of a number of other Reef towns, the first town planning schemes in South Africa (Floyd,1960:48). The Johannesburg town planning scheme dates from 1946, and before the introduction of Pretoria's 1974 town planning scheme, the town planning scheme no. 1 of 1944 was in operation. Both the Johannesburg and Pretoria town planning schemes may be taken as generally representing the intentions conveyed by almost all town planning schemes in South Africa at that time. Together with the first town planning schemes for other towns on the Witwatersrand, they were drafted between 1935 and 1937 under the direction of Colonel P.J. Bowling, who arrived in Johannesburg in 1935 as local representative of the British town planning firm of Adams, Thompson & Frye. The schemes as proclaimed later, showed great similarity both in detail and in general arrangement with the English model clauses for town planning schemes instituted in England in 1934, the year before Bowling's departure from England (Bakker,1979:38).

The Cape Province and Natal promulgated ordinances in 1934 to control town planning schemes and township layouts and to enable local authorities to prepare schemes (Bakker,1979:43).

It is generally accepted that British town planning legislation was the result of the massive urbanization that accompanied the Industrial Revolution. Before this time there seems to be no evidence of control on building lines, coverage, building height and urban aesthetics in the manner it is known today (Benevolo,1967:12). The conditions prevailing in England during the 19th century may without doubt be regarded as giving rise to the institution of these controls (Bakker,1979:40).

A feature distinguishing planning in South Africa from its English counterpart is that towns in South Africa were planned right from the start. Inherited from the Dutch, this planning consisted of the laying down of a street pattern and the introduction of a system of land surveying. In nearly every case the form of design used by the planners was the gridiron pattern. The only variance on this pattern is to be found in the width of the streets, the size of the erven and the disposition and prominence of the squares. Although most towns were deliberately planned and laid out as such, there were exceptions, notably the mining towns of Johannesburg and those on the Reef which were laid out as temporary leasehold stands in terms of the provision of the Gold Law 15 of 1898 (Van Wyk,1999:90).

By way of illustration, Figures 1a and 1b show the gridiron pattern typical of early South African town layouts.

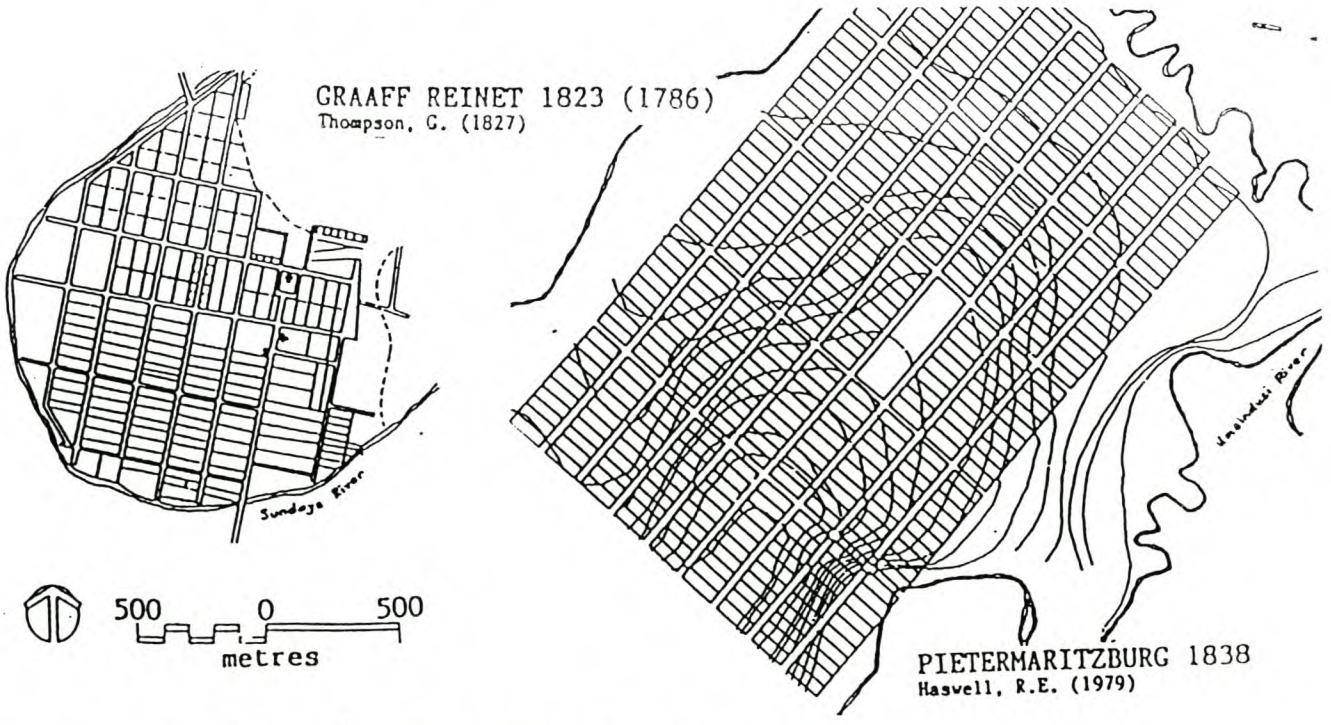


Figure 1a: Comparison of town plans - the gridiron pattern
After Welch (1993:27)

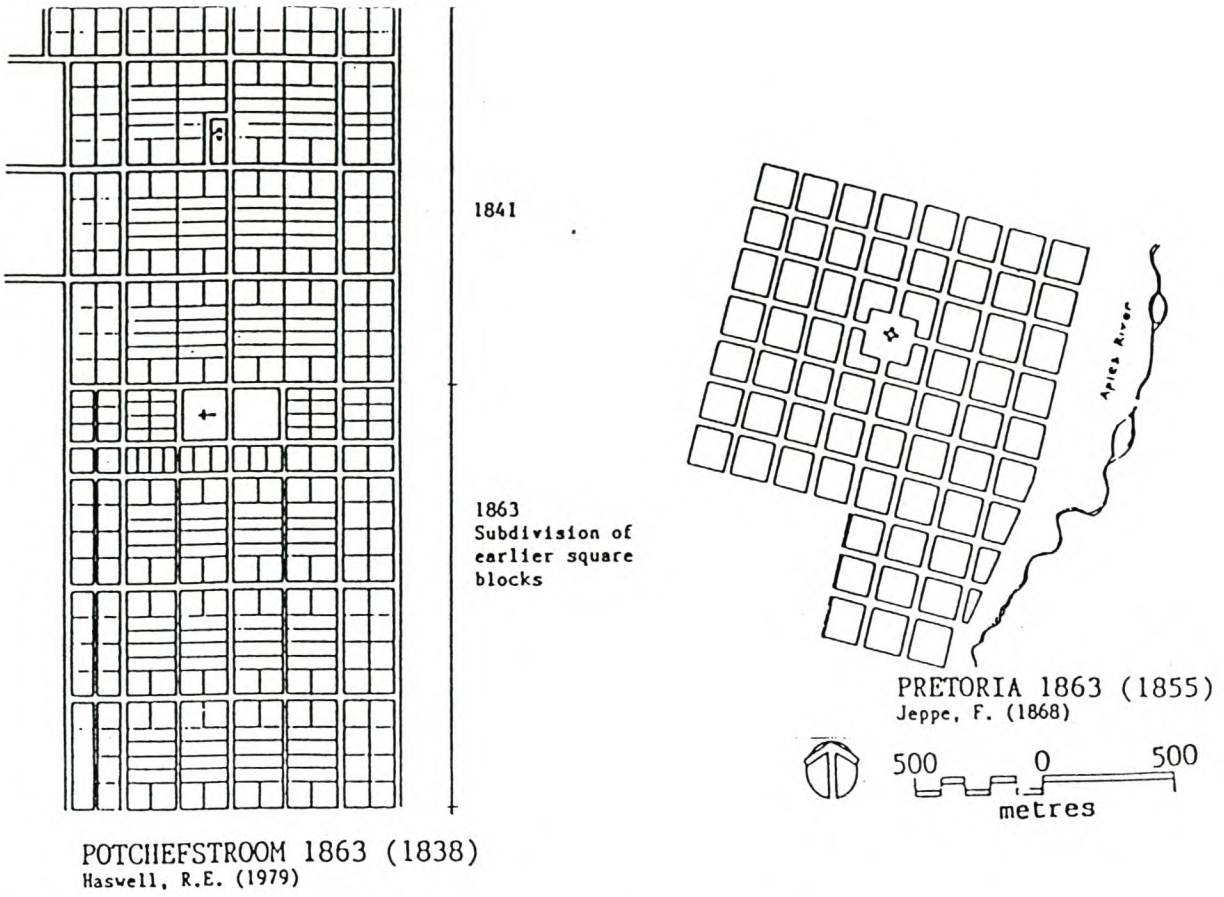


Figure 1b: Comparison of town plans – the gridiron pattern
After Welch (1993:27)

In summary four control measures that existed in the early history of South Africa's urban development are as follows:

- **Restrictive covenants** pertaining to race, use and density measures were imposed on many erven. These were found to be too rigid in that they failed to accommodate the complexities of town life following a greater variety in land uses, as well as the high rate of change in the existing built up areas.

- **The Gold Law** 8 of 1885 provided *inter alia* for the orderly settlement of the mining population, and for the setting aside of sites for trading, industrial, residential, recreational, afforestation and mining uses.

- **The Public Health Act** 36 of 1919 provided for the subdivision and layout of land for building, the width of streets, limitation on the number of dwellings on building sites and the establishment of zones within which different conditions would apply as well as zones within which the establishment or pursuit of trades or occupations likely to cause a nuisance would be prohibited. This Act was passed to alleviate health, sanitation and housing problems resulting after World War I.

- **Building by-laws** aimed at controlling the construction and soundness of buildings as well as exercising control over density, height and coverage were introduced and applied by local authorities.

Van Wyk (1999:1) is of the opinion that the close of the first Parliament and the provincial legislatures which marked the "new" South Africa in March 1999 also marked the end of a law-making era that radically changed the face of planning law in South Africa. On the legislative front some important developments occurred, most notably the enactment of the Development Facilitation Act 67 of 1995 (DFA) in which principles pertaining to the development of urban land, which is applicable to legislation and decision-making throughout the country is introduced. This was followed by moves in certain provinces to enact their own legislation along the lines of the DFA. During this period too, the courts, including the Constitutional Court, gave serious attention to planning issues. Practitioners in both planning and legal fields were faced with both the increased demands of development and the changing legislative situation. The response to all of this is encapsulated in the preparation of the *Green Paper on Development and Planning*, which, over the coming years, is bound to have significant influence on the further development of planning law.

Against this background, planning law in South Africa is emerging as a discrete discipline. Van Wyk (1999:2) gives a very broad term definition of planning law, stating that planning law is concerned with the determination of principles and devices underpinning land development as well as the management and regulation of land use in the different spheres of government: including plan creation and implementation, the changing of land use by procedures such as township layout and establishment and rezoning and the removal of restrictive conditions within the context of sustainable development. The regulation and enforcement of principles and procedures by organs of state, other institutions and the public are necessary adjuncts to these processes. However, not only the physical aspects of land use regulation, but also the social aspects are relevant.

Planning law is the foundation for the use of control mechanisms. Without laws being in place, control mechanisms cannot be enforced. The opportunities in planning law in South Africa could therefore be seen to hold the greatest advantage in creating sustainable urban environments.

However, a potential blight, not only here but generally, on planning law is that it generally mirrors a political ideology. In South Africa, this has had particularly serious consequences. Van Wyk (1999:6) writes that, many of the ills of our apartheid and colonial past, which are felt so keenly in all issues relating to land, are directly attributable to political ideologies and their application to land use. Land use planning in South Africa was fragmented because the land was fragmented for racial purposes. There was never really a legitimate planning law, since there was always a racial bias underpinning the instruments of planning in the form of restrictive covenants, conditions of title or town planning schemes.

At the world congress of the International Union for Local Authorities (IULA) held in 1997, the then Mayor of Greater Johannesburg, Councillor Isaac Mogase (Anon,1997:18), voiced the opinion that in South Africa, local government

traditionally has been at the coal face of apartheid: immersed in practices of upholding influx control and residential segregation. The current urban form is an outcome of "planning approaches, apartheid policies and economic forces" which have influenced the development of cities over many decades.

Hague (1995:11), the President of the Royal Town Planning Institute 1996/7 noted that "Cape Town's black townships are monuments to apartheid planning – the government instructed the local authorities on the layouts."

Although a truism it is nevertheless clear that planning does not take place in a vacuum: it is not value free but reflects those of society or those in power. However, it can be generally accepted that the purpose of planning can be broadly described as aimed at improving the quality of life and welfare of the community involved. Van Wyk (1999:6) writes that in South Africa the actual impact of planning law achieved this idealistic aim only partially. The chief reason for only partially meeting these objectives was that planning was bent mostly towards control and not towards development. Consequently, development has been restricted to the detriment of society at large. These impediments are now being eradicated and new structures are being implemented. The recent past has seen serious efforts being made to make planning more development orientated and less control orientated, more pro-active and less reactive, more process-orientated and less blueprint orientated.

Perhaps the most significant change has come in the form of a new planning ethos. The origins of this new ethos or attitude are to be found in the enactment of the Development Facilitation Act 67 of 1995. The application of the principles of the DFA is far reaching in that these are seen as the instruments guiding the administration of any physical plan, transport plan, structure plan or zoning scheme in terms of any law and must serve as guidelines for any decision taken in terms of any law dealing with land development and planning.

Recent developments in the form of Integrated Development Plans, Integrated Development Frameworks and Land Developments Objectives for the first time explicitly contain in their policy a vision of and a *modus operandi* for the future development of urban areas. The role of the earlier town planning or zoning schemes is now secondary to the social and economic realities, which underlie the comprehensiveness of the new planning approach.

Control mechanisms in the form of design guides, have been adopted to give direction to development in a number of municipal areas. These guidelines are embodied in policy documents that can be easily updated from time to time in order to take cognisance of new and unforeseen developments. Furthermore, in the Western Cape these form an integral part of the Spatial Development Framework, which are to be compiled in terms of Section 4(1) of the Land Use Planning Ordinance of 1985 (Ordinance 15 of 1985). These studies also inform the Integrated Development Plan (IDP), regarding the medium and long term needs of the area. This ensures that available funding is allocated to the most appropriate projects and areas. An example is the Urban Design Framework for Durbanville CBD compiled by The Planning Partnership (1999) for the City of Tygerberg.

In summary the planning law and control mechanisms in place and relevant to this study are:

* National legislation:

  - Municipal Systems Act, 2000 (Act 32 of 2000)
    Integrated Development Plans
  - Development Facilitation Act 67 of 1996
    Contains the underlying principles of development
  - Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985)
    Zoning schemes

- National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)
  Building regulations
- National Heritage Resources Act, Act 25 of 1999
  Conserving historical buildings or sites.

- Provincial legislation

  - Provincial Planning and Development Act, 1999 (Act 7 of 1999)
    Integrated Development Framework
    Land use management
    Zoning scheme

- Municipal legislation

  - Metropolitan Spatial Development Framework
  - Municipal Zoning Framework

- Design guidelines

2.3 A background to English and Western European Planning law and control mechanisms

Like English common law, the most common English urban form, the village, evolved organically during the Middle Ages. The origins of most towns were based on matters of practicality rather than on any theoretical or abstract plan. The most typical aspect of the medieval village was its atypical form. Though some were founded on the planned rectilinear forms of ancient Roman encampments, most grew organically as a practical response to the geography of the site and the needs of the inhabitants (Lai, 1988:18) and (Curran, 1983:1,6). Despite its apparent randomness, Mumford (1961) emphasized, organic planning

nevertheless led to deliberately unified and integrated design embodying a universal pattern as if there were in fact a conscious theory that guided this town planning.

The needs of the people could be met because the population of each village was small, building technology was simple, materials were generally limited to what was locally available and the town development process and product straight-forward.

Other societies also evolved organic town forms during the Middle Ages. However, in Western Europe legislation concerning urban development was based in part upon the traditions of classicism. During the Renaissance, European society and law permitted the supersession and even the obliteration of medieval urban forms by Renaissance designs (Gallion & Eisner, 1980:38). In contrast, the system of English law not only protected its medieval urban form, but actually resurrected the organic plan of London after the destruction of the capitol city by fire at the height of the Renaissance (Lai, 1988:19).

Early regulations usually governed the practical aspects of building and community safety. Protection against fire was a major concern. In medieval London, a disastrous fire in 1189 prompted the Lord Mayor, Henry Fitz-Elwyne, to enact the Assize of Buildings, a pioneer code that required the use of tile roofs and masonry party walls three feet thick and sixteen feet high to prevent the spread of fire. In 1212, thatched roofs in the city were ordered whitewashed to reduce their flammability. Later, in the fourteenth century, detailed regulations governing buildings required roofs to be covered with tile, lead or stone. Similar laws safeguarding against fire and unsanitary conditions were also passed in cities in Western Europe. According to Lai (1988:23 these laws were, as often as not neither stringently enforced nor followed.

In contrast to the practical function of building law during the Middle Ages, in Western Europe, the Renaissance saw law being used to implement theoretical concepts of urban design. As the Middle Ages passed, urban design in Western Europe became increasingly subject to definitive laws guided by abstract concepts of reason and design.

As early as 1262, the Italian city of Siena passed an ordinance governing the character and height of private structures facing the city's Piazza del Campo. Unlike previous laws motivated for practical reasons of public safety, this regulation was distinctive as a conscious effort to preserve the holistic, radial design of the piazza. Although chronologically belonging to the Middle Ages, the deliberate aesthetic order and unity of Siena's piazza heralded the early Renaissance in city design (Lai,1988:22). To this day, the Piazza del Campo (Figure 2) is seen as an excellent example of urban design and public open space and the creation of a clearly articulated sense of place (Hedman & Jaszewski, 1984:79).

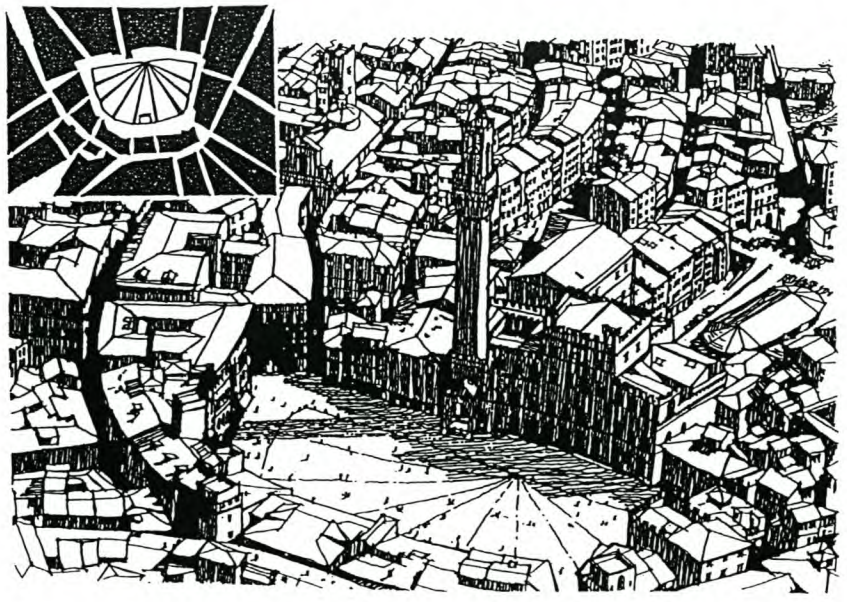


Figure 2: Piazza del Campo (Rudlin & Falk, 1999:12)

The differences between continental rationalism and English empiricism in town planning and law can also be seen in a comparison of the development and reconstruction of London with the reconstruction of Paris.

In the mid nineteenth century, Napoleon III and his Prefect of the Seine, Baron George-Eugene Haussmann, undertook a massive redesign of the French capitol, Paris, between 1850 and 1870. Like Sixtus V before them in Rome, their aim was to transform the organic, winding contours of the old medieval town into the radiating geometry of a great neo-Renaissance city which would provide a model for old cities everywhere anxious to meet the needs of modern traffic. This feat of centrally dictated, rational planning was made possible by the character of France's civil society. To build the city's network of grand boulevards and infinite vistas, Haussmann did not hesitate to displace countless people and to expropriate and demolish fine historic works of architecture, houses, and other private properties. The plan for Paris was basically a massive expression of imperial authority, conceived and executed by Haussmann on behalf of Louis Napoleon and under the protection of civil law (Lai,1988:25 and Kostof,1992:266).

In London, on the other hand, the real source of power behind the city's development and reconstruction was the middle class. The history of London's growth is marked not by centralized planning decisions, but by frequent instances wherein government catered to the will of the city's merchant society. Free enterprise was the guiding force, in the manner of Adam Smith's invisible hand. Whereas the geometric order of Haussmann's neo-Renaissance Paris remains a grand symbol of centralized authority and rational planning under a civil code, the less unified and more organic urban form of London reflects its origins in capital enterprise under English common law (Lai,1988:27).

Even well before this, under the reign of Elizabeth I, London began to grow rapidly and the city's "upper class" became alarmed over the rising migration of

the poor from the surrounding countryside. In 1580, under pressure from the influential guilds, which were fearful of competition by recently arrived craftsmen, Queen Elizabeth issued a proclamation restricting development near and within the city. Enacted by Parliament in 1592, her decree had three major provisions all aimed at stemming the migration into London although centuries apart these measures are strikingly similar to the exclusionary methods practiced by many American communities today (Rasmussen, 1934:68) and in South Africa under apartheid.

The three major provisions were: The prohibition of the building of any residential structure within three miles of the city of London; the restriction of the construction of habitations where no structure had been built before and to forbid multiple occupation of existing buildings (Morris,1994:250).

Had these restrictions been stringently enforced through the years, the limitation on development within three miles of London would have created a broad agricultural green belt around the city, not unlike Ebenezer Howard's Garden City ideal proposed at the turn of the twentieth century (Lai,1988:27).

Other measures were also passed to discourage population density and not coincidentally to expel aliens and the poor. A law of 1588 applicable to London and smaller, unincorporated towns required that each house have four acres of ground at least and that it be continually occupied and manured. The Crown though was always prepared to waive the restriction on receipt of suitable "dispensation". Again similar to contemporary minimum lot sizes restrictions aimed at the exclusion of the less affluent, this regulation served to establish the interests of the wealthy in the name of environmental protection. From the vantage of design, one might again speculate that these Elizabethan edicts on housing may have helped fashion the habitual preference for single family, detached housing that distinguishes Anglo-Saxon cultures from most others (Morris,1994:250) and was later transferred to South Africa.

The English were not unaware of Renaissance efforts in Western Europe aimed at unified urban design. During this period, there were attempts to include aesthetic considerations in building regulations despite the incompatibility of such measures with English traditions and attitudes towards such controls. These royal building regulations were for the most part ignored, as there simply was no sufficiently interested body charged with their enforcement (Lai, 1988:28).

Design cannot be attributable to legislation alone, especially since law itself is a authoritative social norm of a particular culture. Nevertheless, if enforced diligently, even an unreasoned and oppressive law can be a compelling force in establishing a social habit or a design norm as typified in our apartheid legislation. A law may have an unintentional but considerable effect as an incidental or accidental consequence to the principle purpose of an enactment. Unlike the redesign of Rome, it is doubtful that Queen Elizabeth I had any intent to influence designed urban form towards a green belt concept or to promulgate detached single-family housing as a practice (Lai,1988:28).

The Great Fire that broke out on September 6, 1666, reduced London to ashes. Yet when reconstructed, the new city virtually followed original building lines, thus retaining the basic form of the medieval town. It was not that Charles II did not want a Renaissance design for the capital, but that he lacked the power under English law, to exercise the necessary planning authority, despite the devastation (Lai,1988:30).

The king appointed a committee to make a study of the conditions and properties in London prior to the fire and to draft regulations governing reconstruction. In 1667 Parliament passed an act for the rebuilding of London. The enactment did not propose any intellectually rationalized, overall scheme laid down by decree, but specified practical standards to be adhered to by individual landowners in reconstructing their properties. The Act for the Rebuilding of London, required the

widening and straightening of narrow medieval streets, adjustment of awkward street levels and removal of bottle necks and "middle rows"; and it also standardized building by requiring the use of brick or stone walling and tiled roofs and specifying the number of storeys to be built in streets of differing widths and importance (Kostof,1992:200).

Implementation of this Act resulted in a controlled urban form comprising regular frontages, building height related to street width, uniformly spaced windows and related cornices and string courses (Burke, 1977:105).

The heights of buildings were permitted to vary in relation to the width of the adjacent street, with taller structures allowed along broader arterials but with lower edifices stipulated along narrower streets so that sufficient light would not be obstructed in either case. Thus, the organic medieval form of London was largely restored because the English law placed greater social value on individual property rights than on centralized planning ideals, however rational or benevolent (Lai,1988:33).

Among the most interesting aspects of English urban development from a legal standpoint has been the private, speculative development of leasehold land and the use of the private covenant or contract as a means for design control. During the eighteenth century, large tracts of developable land in England were held almost exclusively in freehold or copyhold by nobility whose forebears had been granted the land by the Crown. In Britain there existed no mortgage system that could make large amounts of capital available to entrepreneurs. As a consequence, development of land acquired through leasehold became commonplace (Lai,1988:35).

The townhouses of the Circus and Royal Crescent (Figure 3), built by John Wood and son at the fashionable hot-springs resort of Bath were typical

speculative projects developed on land obtained through a ninety-nine-year lease agreement (Bacon, 1974:184).

The practice of speculative, commercial development of residences on leasehold land and the use of the private, restrictive covenant contributed fundamentally to the design character of the pleasant, tree-filled squares that are so much a part of London today (Kostof,1992:164). Another example is the typical Bloomsbury square (Figure 4) where the covenants accompanying the leasehold contracts have effectively determined the tenancy, the exterior design, the maintenance of the property, and ultimately the exclusive and exclusionary character of Bloomsbury to this day (Lai,1988:35) .

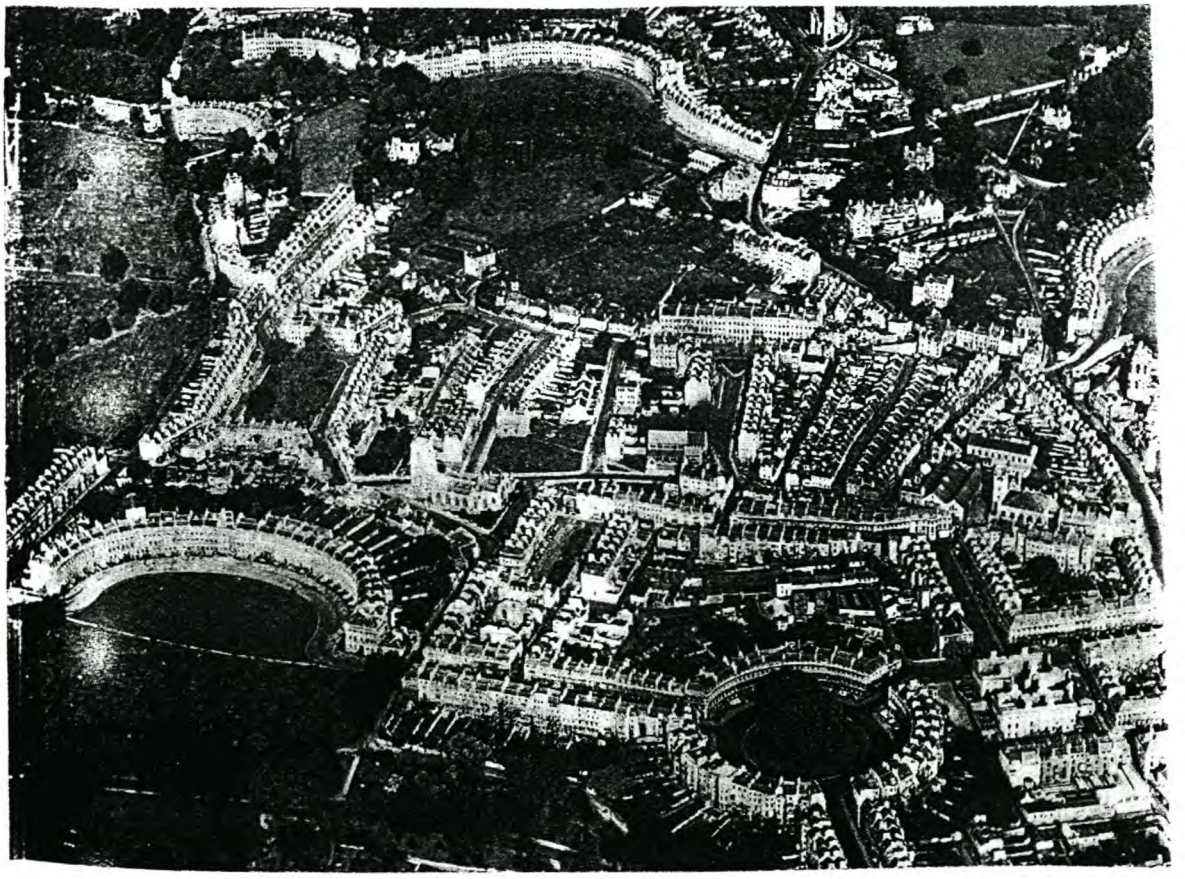


Figure 3:Circus and Royal Cresent in Bath (Mumford, 1961:Plate 37)

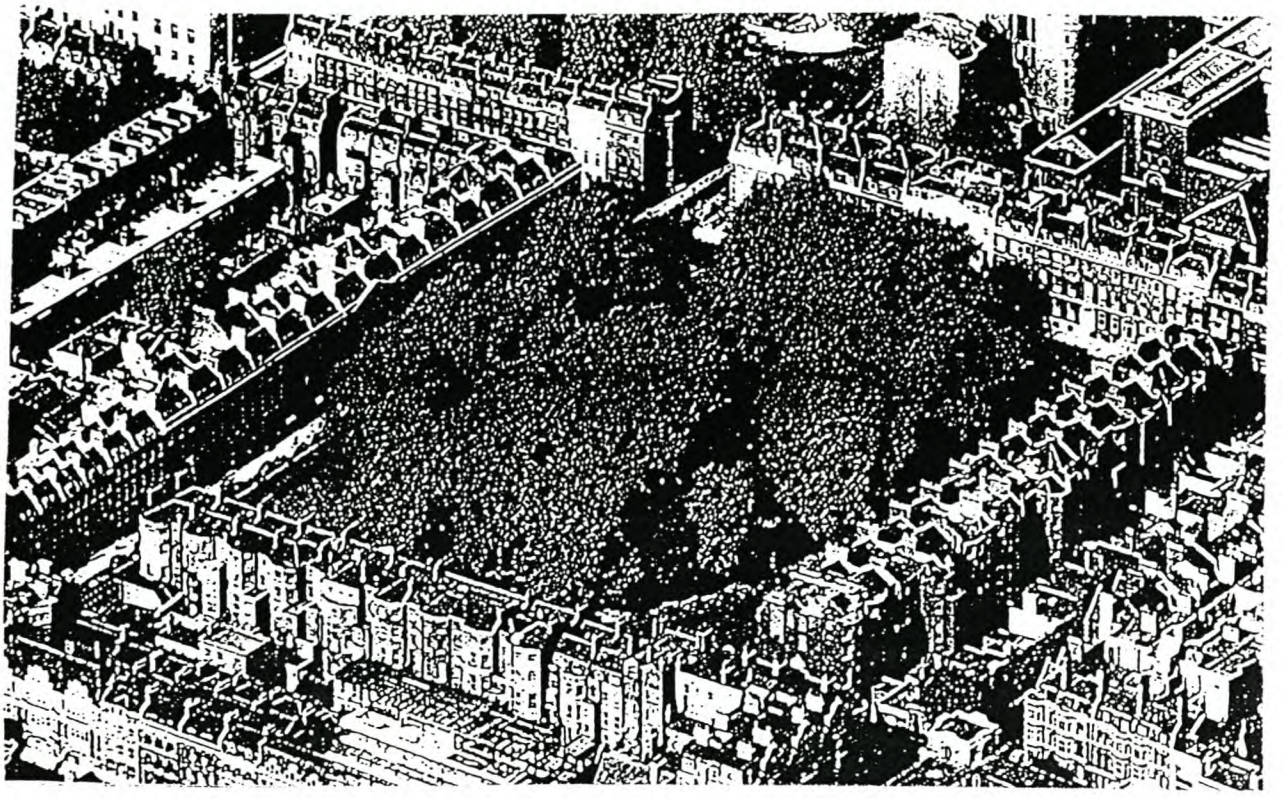


Figure 4: Bloomsbury squares – Bedford Square (London) (Kostof, 1992:164)

The Industrial Revolution in Britain in the nineteenth century created miserable living conditions for the masses. There was an enormous influx into the towns which led to the problem that on average 200 000 people had to be housed every year; but neither town councils nor employers saw it as their responsibility to build the necessary dwellings. They left it, instead, to speculative builders – "jerry-builders" whose *modus operandi* was maximum utilization of land and minimum expenditure on materials and services. Ineffective or corrupt town councils paid little heed to control over development, such as had been exercised in the previous century over speculative building, probably because the housing was for the least influential section of the population. Dwellings of brick with slate roofs were built row upon row along unlit and unpaved streets, with little regard to orientation or day-lighting and with no internal water supply or sanitary facilities (Burke, 1977:127).

Densities reached 150 dwelling per hectare (Conzen, 1981:97). Some 200 000 people were housed in 43 366 dwellings of this back-to-back type housing

already condemned as injurious to health because of lack of ventilation. This meant that over a quarter of a million people lived in appalling conditions. A significant step towards municipal self-help was taken in the Municipal Reform Act of 1835, which had the effect of transferring much of the power of local administration from the old monopolies of lawyers, professional men and landowners into the hands of local shopkeepers and tradesmen who were more sympathetic to schemes of improvement. The new councils that were appointed at a later stage were slow to comprehend the vast extent of damage caused by years of indiscriminate urban growth and to devise practical remedies (Burke,1977:135).

According to Kostof(1992:207), Burke (1977:144) and Conzen (1981:97) the Public Health Act of 1875, made the enforcement of satisfactory sanitary conditions imperative and empowered local authorities to make by-laws governing *inter alia* such matters as the level, width and construction of new streets and their drainage; the structure of walls, foundations, roofs and chimneys to give sound, reasonably fire-proof and healthy buildings and space around buildings for ventilation.

The triumph of sanitary reform was soured by the dreary monotony of mass production which caused a grim lack of amenity, playgrounds or open space, and the virtual destruction of all vegetation on building sites as a normal preparation for development. Industrial cities were reduced to the most elementary and pragmatic level of repetitive building units, organized along essentially anonymous gridiron streets (Curran,1983:8) (Figure 5a and b).

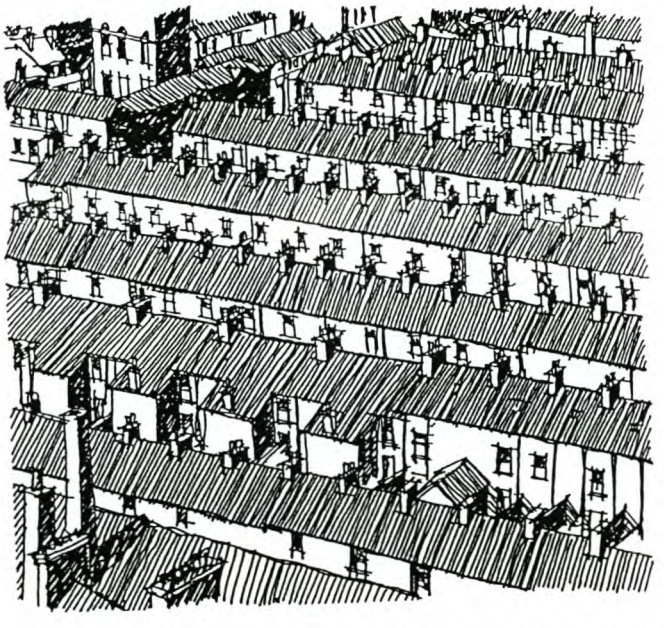


Figure 5a: Industrial town in England (Mumford,1961:Plate 39) and 5b: By-law housing (Rudlin & Falk, 1999:54)

These illustrations show the minimum of order and hygienic decency introduced in the second half of the nineteenth century: likewise the overcrowding, with its wasteful multiplication of expensive paved streets and avenues.

Because of lack of amenities and substandard housing in the burgeoning industrial towns, concerned people wanted to create a better environment that was not hazardous to the inhabitants' physical or mental health. An array of idealist reformers ("Utopian Socialists") made contributions to town planning with their visions of Garden cities (Burke,1977:135). The Garden cities were idealistic planned communities, laid out according to the vision of the individual reformers. Examples are Saltaire built by Titus Salt, Bournville and Port Sunlight the product of commercial enterprise and Letchworth (1907) and Welwyn Garden City (1919) based on the ideals of Ebenezer Howard.

Although not all these utopians were successful in the application of their theories, the ideas put forward and implemented by them had and still have an influence upon town design today. In some cases these utopians took an active part in supporting legislative reforms (Bakker, 1979:51).

The adaptive quality of design in response to restrictions imposed by private property maybe lent to English city development a more humane quality that was sometimes absent in the formalistic and generally geometric planning found in Western Europe. Physical restrictions on design resulting from limited ability to manipulate individual properties led to ingenuity and diversity in city planning that a more simplistic approach was not able to achieve. By adopting more reasonable constraints, urban design was able to be more adaptive and have a softer quality than might have been the case had legal obstacles been completely absent (Lai,198:37).

The system introduced by the 1947 Town and Country Planning Act took for granted that a unique plan, present in map form, could be prepared to represent the public interest in each urban area. Design control was not explicitly mentioned but there was evidence that it was implied. What was not current at the time was the public consideration of alternative policies and the active involvement of interest groups and the public at large in the process. The public

interest was seen as singular, divinable by the public authority and expressed in the development plan. The control function was intended as a necessary way of ensuring that new development was in accordance with the plan (Hall, 1996:7).

However during the 1960s the rate of change in economic and social conditions outstripped the ability of a development plan, in the form of a land use map, to cope. Development plans took far longer to prepare and approve than had been envisaged. A timetable of quinquennial reviews made little progress and the original town and country maps became outdated. Nevertheless planning consent was still required by law and decisions on planning applications had still to be made. Development control continued almost as an end in itself, perpetuating a set of outmoded policies and values.

The 1970s saw the introduction of a new development plan system incorporating legal, administrative and plan-making procedures that were indicative of a new planning philosophy. The development plan had begun to be seen as a broad-based strategy emerging from a choice between value-based alternatives. Whereas this thinking had great effect on plan making at the structure plan level it did not, unfortunately, percolate down to a more detailed level, such as design.

Local plans did, indeed, become more methodical and directed towards control activities (especially during the 1980s) but this was not sufficient to counteract what had become a development control culture. What had much more effect on the conduct of design control was that the participation of interest groups and the public at large became fashionable. The planner was no longer seen as the sole arbiter of the public interest in the development process but as one agency in a pluralist context. It is not argued here that all these ideas were quickly and effectively realized in practice, quite the contrary. What is significant is that they were embodied in legal and administrative changes that still characterize the British system. Noteworthy were the use of briefs for development setting out the position of the planning authority as a basis for negotiation on a particular site

and Section 106 Agreements (Section 106 of the Town and Country Planning Act 1990) by which developers may agree with the planning authority to use proceeds of the development for community benefit (Hall, 1996:8).

2.4 A background to American planning law and control mechanisms

In America the development of control mechanisms is different to both British and Western Europe in that the system of codified civil law as applied on the European Continent is conductive to a planned society in terms of rationalist predetermination. In England, the empirical system of common law allowed doctrines to evolve that at once ensured the Rule of Law and permitted considerable administrative discretion in the pursuit of public planning objectives. The American approach contrasts with both the English and European practice. By placing restrictions on governmental power and discretion, the Constitution effectively places limits on public planning and urban design authority (Lai,1988:67).

In American cities, regulations not unlike those existing in England were enacted to protect public health and safety; for example those passed in Boston in the seventeenth century required that buildings be of masonry with roofs of slate or tile. The penalty for noncompliance was a fine equal to twice the worth of the construction itself. Measures concerning structural stability and the provision of firewalls were also common. In Philadelphia, codes determined the construction and width of party walls. Other laws governed land use rather than construction (Morris,1994:339). In Boston and New York City, statutes prohibited or restricted the location of noxious activities, such as slaughterhouses. In Philadelphia, a health ordinance enacted in 1700 had decidedly urban design objectives. "Every owner or inhabitant must plant a tree in front of his or her home, not exceeding eight feet from the front of the house to the end that the town will be well shaded

from the sun in the heat of summer and thereby be rendered more healthy" (Lai,1988:68).

Spreiregen, (1965:175) notes that at the outset the laws of man and nature regulated both rural and urban land. In the case of rural land, the man-made regulator was the basic system of land apportionment. In the case of urban land, basic agreement between private citizens in collective action established the rules. As technology and the waves of immigration advanced, the urban problem was compounded, and the nineteenth century saw the inception of many public regulatory measures. After fires leveled extensive portions of several crowded cities laws were drafted for fireproof building construction. Measures were established for obtaining drinking water and for carrying away sewage when the dangers of polluted water were recognized. Franchises were issued to public transportation companies to facilitate public transportation.

When living conditions in crowded areas became intolerable and the public at large was aroused by inhuman slum conditions, housing codes were adopted, the forerunners of zoning. The city government itself, having surrendered its landholdings to the public, and with them its source of revenue, began to tax landholders and revenue-producing enterprises. Land taxes replaced land rents. Municipal revenue regulated municipal service in accord with the public's approval (Spreiregen, 1965:175).

It should be borne in mind that American government regulating powers originated from the wishes of its private citizens as was the case in 1916 when New York City adopted its zoning ordinance – the forerunner of the kind of zoning that cities and towns all over the nation were to adopt. Zoning in New York was necessitated by the threat to property values posed by the unregulated erection of tall buildings and the influx of lower-class immigrants to the Fifth Avenue area. The forty-storey Equitable Building rose from the ground as "a solid prism" and cut off light and air from its neighbouring sites and buildings that

depressed their value. Overcrowding and over-development had long been of concern to some New Yorkers. Sensing the danger to health and property, the public representatives adopted zoning ordinances to stave off further threat (Johnson, 1996:37).

Safeguarding adequate light and air was basic to public health, and zoning was therefore in the public interest. This concept was legally validated in 1925 in the Supreme court case of *Euclid v. Ambler*. Euclid was a suburb of Cleveland, which had adopted zoning prescribing land use districts, lot size and setback, and billboard restriction. The features of Euclid's zoning were typical, embodying the new concept of public health, welfare, and safety – the accepted basis of public regulation (Gallion & Eisner, 1980:187).

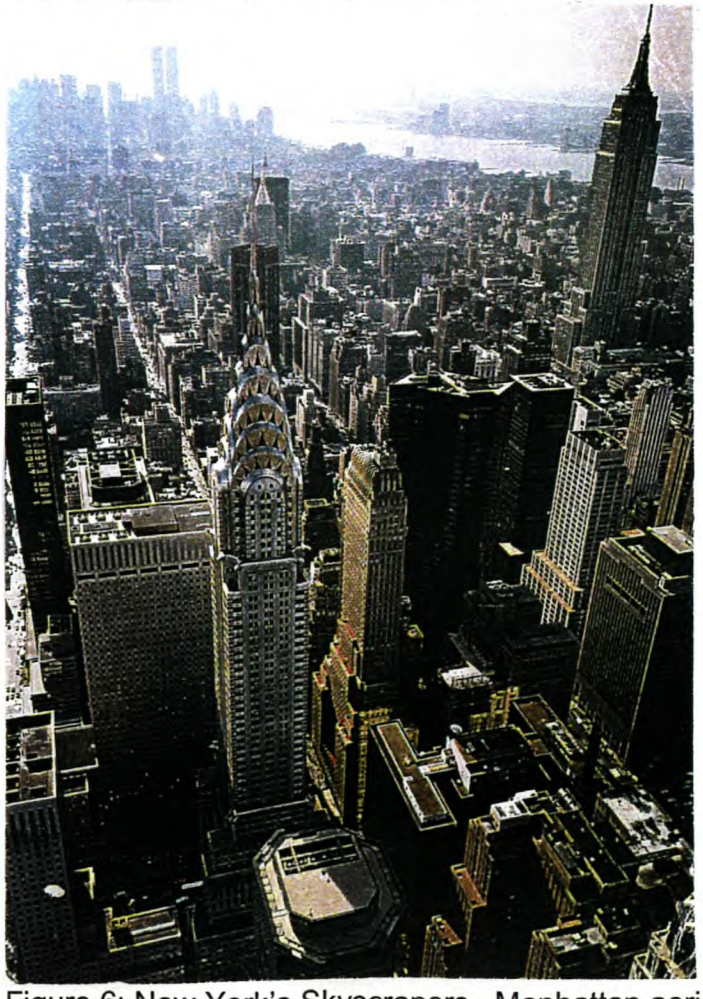


Figure 6: New York's Skyscrapers –Manhattan aerial view (Photo, Jeff Prant)

Even before zoning was taking hold in America, Raymond Unwin had produced in the publication *Nothing Gained from Overcrowding* which was published in 1903, and Unwin's philosophy was widely espoused in America. Unwin supported zoning and by the end of the 1920s the concept of zoning had won general acceptance. It was also agreeable to real estate people because it helped maintain property values and could, with deft manipulation, create, enhance and maintain property values (Spreiregen, 1965:175).

But zoning was not the only regulator that was recognized. The present concepts of eminent domain, taxation, and the enforcement of regulation were becoming recognised. Eminent domain is exercised when land is taken for public purpose when the owner does not want to sell his property. A fair price based upon testimony from witnesses representing the owner, the community and impartial appraisers is agreed upon in court. Due process of law in such cases was justified on the basis of the general public's welfare. Use of the right of eminent domain is not to be confused with the use of the police power: the principal difference between the two powers lies in the matter of compensation to the owner; under the police power the state does not "take" the property from its owner – it regulates the right of use on behalf of the public welfare (Gallion & Eisner, 1980:177). A similar principle is applied in South Africa by the Expropriation Act 63 of 1975.

Compliance with zoning ordinances became the responsibility of the police. Meanwhile, private property owners had developed the concept of the restrictive covenant, a means to legally perpetuate their desires for their property. In the depression it was realized that the homebuilding industry was the key to getting the country back on its economic feet. The Federal government stimulated construction by guaranteeing mortgage loans for housing. Of course, the housing had to meet basic construction standards so that the public's money was spent wisely. Underlying the construction standards was the idea that overcrowding was not necessary and must be avoided. The standards coincided with the

public's predilection to single-family houses on individual lots. Later, proposed modifications to these standards were met with objection, because change was seen as a threat to value. Status quo, too, can be a regulator (Spreiregen, 1965:176).

Lai (1988:85) mentions two events that occurred in the 1920s that had profound consequences on the design of the "invisible web" of law and its effect on American planning. One was the formulation and widespread adoption of zoning legislation; the other was a Supreme Court ruling on zoning's constitutionality, referring to the *Euclid v. Ambler* court case. After its inception in New York, the concept of zoning gained immediate popularity as an effective tool with which municipalities could control growth.

According to Spreiregen, (1965:176) there are two events that should be noted as landmarks: one was the drafting of a model document in Washington D.C., by two attorneys in 1926. At Secretary of Commerce Herbert Hoover's request, Frank Basset Williams and Edward M. Basset wrote the "Standard Enabling Legislation". This document was adopted by many states in zoning enabling legislation that empowered their constituent cities and towns to prepare plans, zoning and otherwise. Zoning and planning were made legal on a state-by-state basis over a period of ten to fifteen years. The second event was more recent, but equally significant. In 1954 the Supreme Court decided that aesthetics was a just public concern worthy of support by law. In *Berman v. Parker*, an urban renewal case dealing with the first Southwest Urban Renewal Project in Washington D.C., the Court ruled that it was within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as carefully patrolled and that public welfare included values that were "spiritual as well as physical, aesthetic as well as monetary" (Burgess, 1997:99). Many states have adopted this and followed suit.

Spreiregen (1965:176) notes that the maze of regulations affecting architecture and urban design ranges from requirements of the national economy to building codes. But, as he points out it is from this maze that one central factor emerges: our attitude toward what we want from our great productive energy. Furthermore regulations and controls exist in the form of laws and powers granted to public officials. In a democracy laws and public powers come into being only after their need has become apparent and proved essential to the public interest. Just as it takes time to create laws and public power, so it takes time to change them when a change is needed. America's history – long term and recent – has been a history of change. It is not strange, then, that some of the laws become obsolete or at least out of tune. This results in two problems: one has to contend constantly with outmoded regulations and controls; and one is reluctant to adopt new controls or regulatory procedures out of mistrust for the idea of control in general. More specifically, Americans are slow in adopting techniques more advanced than zoning, such as the public control of land use on a comprehensive scale.

From Britain, the United States has inherited many social norms and practices. The contributions of English tradition are basic: the system of common law (or case law, as its modern progeny is called in America); the ethic of free enterprise; and the concept of private property (Lai,1988:41). This all forms the basis for the type of control mechanisms and the extent of their use that are acceptable in the United Sates.

The Wealth of Nations by Adam Smith(1776) published in the same year as the beginning of the American Republic defined the principle of capitalism and the concept of laissez-faire. Property was seen as an individual right to be protected, not regulated, by the state. Translated to the use of land this meant the individual may develop it as he or she pleases and the public welfare would be served by the collective results of the individual's freedom of action (Lai,1988:42).

Urged on by Capitalism's profit motive, Americans came to regard their bounty in land less as a resource for life than as a means for gainful speculation. Expediency rather than design emerged as the standard for land and city planning. Lewis Mumford(1961:422) observes, "Urban land, too, now became a mere commodity, like labor: its market value expressed its only value". Kostof (1992:63) agrees with Mumford when referring to the speculative building in America: "Land, beyond being a profit-turning commodity, had little social meaning". Ease of measurement and subdivision became the criteria for land planning. Since rectangular lots required less effort on the part of the surveyor, the lawyer and the speculator to describe, divide, and sell, the rectangular plot multiplied became the gridiron framework of the American city. The commercial compulsion led to the laying out of blocks and streets as abstract units for the subdivision and sale without regard for environmental or social considerations (Gallion & Eisner, 1980:49) and (Conzen, 1990:146).

The gridiron did not originate from speculative expediency. In its simplicity, the pattern was among the town designs employed by the ancient civilizations of Egypt, Mesopotamia, and China. The rectilinear shape that was the logical choice for colonization in New World settlements, such as Savannah and Philadelphia, had also been the plan of the Greek colonial towns and Roman military camps that later evolved into the major cities of Europe. Even though ill-adapted to irregular topography, the rectangle provided a simple formula that allowed colonists to bring spatial order to settlement quickly without spending time exploring the peculiarities of each particular site. It seemed a natural and historically proven choice for early community settlements in the New World. The proliferation of the gridiron in America, however, had little reason other than its convenience for the subdivision of land (Lai,1988:48) and (Morris,1994:337, 347).

Morris (1994:335) is of the opinion that the "Great American Grid" is by far the most extensive instance in rural and urban history of a predetermined pre-urban

cadastre. The legislation that made it possible was passed by the Continental Congress in 1785 - *An Ordinance for Ascertaining the Mode of Disposing of Lands in the Western Territory*, which institutionalized the gridiron plan as the basis of man-made geography in America. Thus the "invisible web" of law had an explicit, far-reaching, and long-lasting impact on urban form and environmental design. The law stipulated a scheme of mapping federal lands west of the original states, through which the entire country was laid out as a gridiron of rectangular parcels and townships (Lai,1988:49).

Perhaps the needs of both capitalism and colonization encouraged rectangular gridiron planning in urban land development, and this 1785 Ordinance did not so much mandate a norm on society as it conformed to one. Nevertheless, the legal institution of an expedient planning solution obliterated even reasonable deviation. City sites possessing distinctive natural topographies with hills, valleys, shorelines, and rivers were obliged to submit to the unyielding gridiron. The absolute adherence to one type of land layout was neither organic, as was English planning, nor rational, as was the idealized geometry characteristic of French design. Indeed the blind geometric dogma of the gridiron plan eluded both the rationale of laissez-faire and the organic functionalism of the colonial frontier. Ironically, through its uncontrolled excesses in proliferating the gridiron as the physical norm of urban America, this Ordinance according to Lai (1988:51) vividly demonstrates the compelling if sometimes unreasoning force of the "invisible web" of law over environmental design.

This is again typified in the Commissioner's Plan of New York City of 1811, for instance, converted the island of Manhattan north of Washington Square into a endless sea of rectangles in the belief that a city is to be composed principally of the habitations of men, and that straight sided, and right angled houses are the most cheap to build, and the most convenient to live in (Figure 7). Chicago's origins were even less considered, the city having been laid out in 1830 as part

of a survey to enable a speculative real estate transaction (Morris, 1994:344,359) (Figure 8).

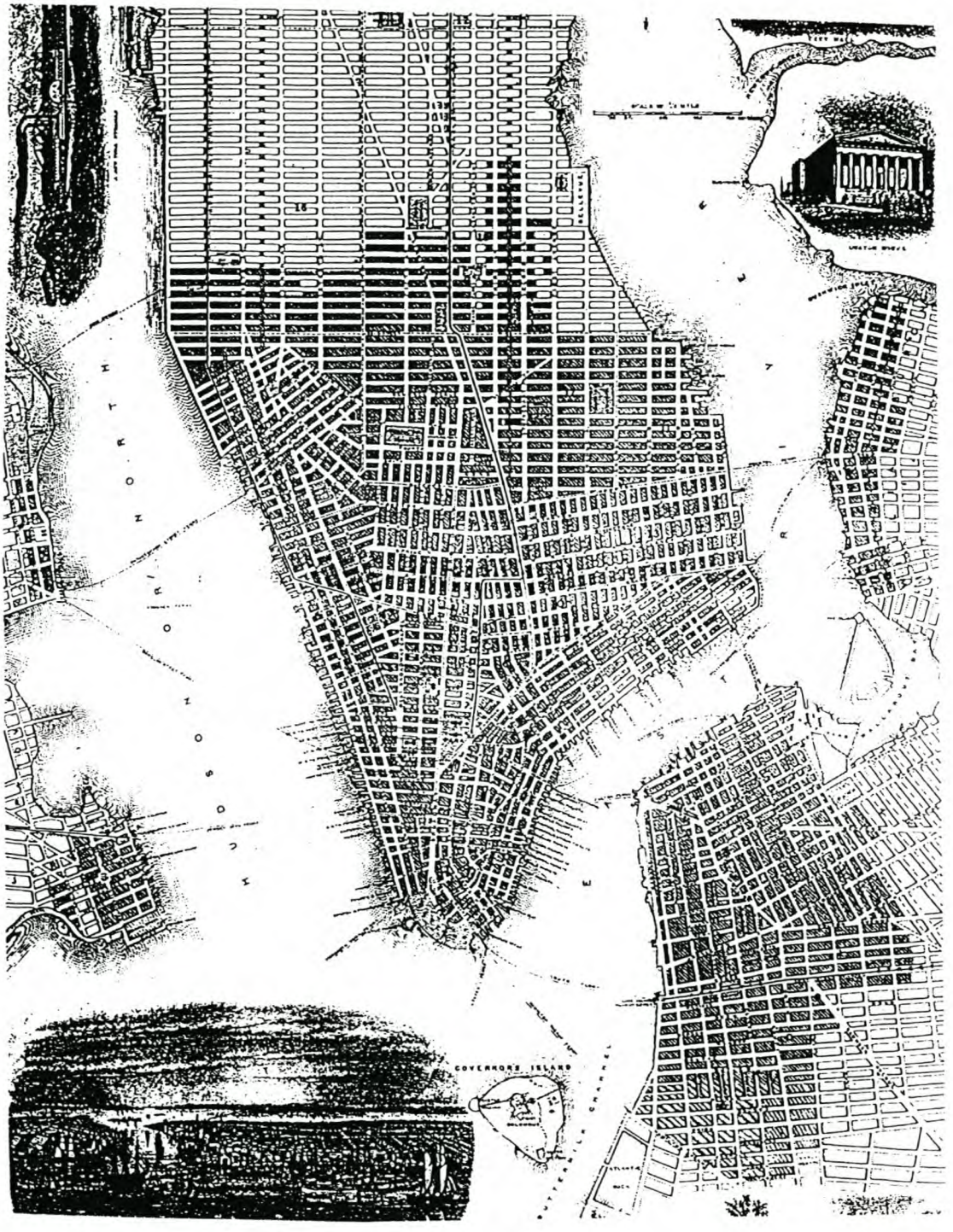


Figure 7:New York – gridiron plan (Morris, 1994:343)

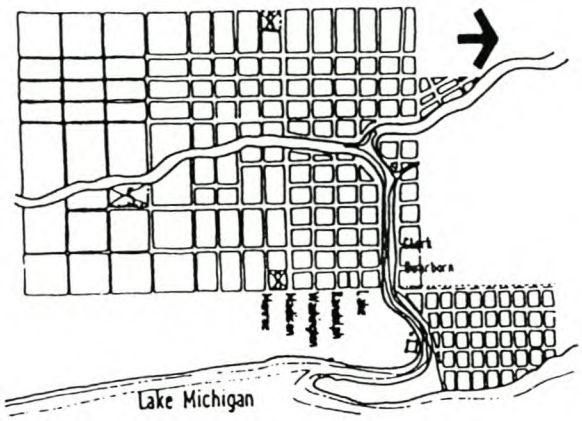


Figure 8: Chicago (1834) – gridiron plan. (Morris, 1994:359)

As in Europe, much of American land use controls prior to formal planning stemmed from practical efforts to control, prevent, or remove nuisances through police power. However during the late nineteenth century several wealthy New Yorkers built new mansions along Manhattan's upper Fifth Avenue, soon followed fashionable retail stores and in the 1910's there was a migration of the garment industry from lower Manhattan.

To prevent the intrusion of the garment factories and concomitant immigrant hordes, the merchants and the residents of Fifth Avenue, joined to prevail upon the government to enact laws to safeguard their urban enclave from those invasive elements. The instrument used for this exclusion was zoning, which the city formally adopted by resolution in 1916 (Lai,1988:81) and (Johnson, 1996:38).

The adoption of police power as the basis for land-development administration signaled a fundamental divergence of American planning controls from the British. By the mid twentieth century, public regulation and planning of private development in England became formally based on the concept of compensation, with government being obliged to pay owners for the development interest in their property. America was not inclined to follow (Lai,1988:83).

Certainly, as a society expands in size, density, and complexity, the potential for conflict rises, increasing public interest in broadening the scope and furthering

the reach of governmental authority. To offset the excesses of control exercised by the authorities, a search for greater administrative flexibility in planning and zoning controls has become evident (Lai1988:90).

2.4.1 Zoning

According to Lai (1988:117) the drafters of the Standard Acts of the 1920s, saw a city plan to be something that could be embodied in a zoning map just as a work of architecture could be described in a blueprint. Like a blueprint, the zoning map defined a predetermined, physical end state that would be essentially permanent and need little administrative discretion in implementation. He is of the opinion that over the years zoning has undergone the test of practical application. It has been a history not without failing, owing in part to shortcomings of the original model acts but also to failures in legislative and administrative implementation, changing circumstances, and evolving perceptions of planning itself.

Under Euclidean zoning, a local area of jurisdiction is divided into districts, within which all private development on land is restricted by police power to certain designated types. Typically, residential, commercial, industrial, and agricultural activities are segregated from one another, and usually each functional type is categorized again into different classes to reflect density or intensity of use. Residential districts, for instance, normally differentiate between land set aside for multi-family apartment buildings and areas designated for single-family detached housing. Minimum lot size dwelling is often regulated, and sometimes building area. Structural height and setback from property lines as well as the provisions for on-site parking are also usually subject to zoning regulations (Lai,1988:121).

Variances or departures may be permitted to allow for the relaxation of the zoning code where strict enforcement would result in an unusual and "unnecessary hardship". These can refer to either the physical aspects of a

proposed structure – for example, building area, height, bulk, setback, or parking provisions – or it may concern the use of the building within a zone. Over the years, the legal definition of the qualifying term "unnecessary hardship" has been relatively well established by the American courts and is generally taken to mean that hardship must derive from the specific circumstances of the property in question, such as its dimensions or topography, which would prevent the owner from obtaining a fair and reasonable return on his investment. Properly issued, the variance should conform to the general character of the neighborhood so as not to be detrimental to nearby property values or otherwise be harmful to the public health, safety, and welfare (Lai,1988:124).

2.4.2 Building Height, Setback, and Bulk

Besides provisions explicitly outlined by the Standard Acts, other regulatory practices have gained such acceptance that they are now regarded as traditional. Restrictions governing building height, bulk, and setback from property lines predate the Standards Acts in that these were included in the nation's first zoning resolution passed in New York City in 1916 (Lai,1988:140).

With land in the city centre always at a premium, the twentieth-century advent of high-rise building technology made more urgent the need for measures to check development through unbridled economic incentive leading to building sites being built on to the lot-line edge with ever-higher and larger structures. Lai (1988:141) notes that the problem was nowhere more acute than in New York City, where the profit motive in land development created not only a lofty realm of tall and massive skyscrapers but also an underworld of streets and smaller structures robbed of sunlight and fresh air.

The construction of the 42-storey Equitable Building in 1915, for example whose full 540-foot height covered the entire lot from property line to property line caused the surrounding properties to drop in value because they were robbed of

light and air. Its winter noon shadow enveloped some six times its own area. Stretching almost a fifth of a mile, it cut off direct sunlight from the Broadway fronts of buildings as tall as twenty-one stories. The darkened area extended some four blocks to the north.

Within the first quarter of the century, the urge to derive maximum economic use of valuable urban land transformed parts of lower Manhattan into dark canyons of masonry and concrete. Widespread dissatisfaction with the urban environment resulting from the increase of looming structures began to mount. Popular sentiment against these huge buildings was also reflected in the response of the courts. In 1909, in *Welch v. Swasey*, the Supreme Court upheld a police-power regulation limiting building height in Boston; in *Gorieb v. Fox*, it acted again in support of a Roanoke, Virginia, ordinance requiring buildings to be set back from property lines. With these decisions by the high Court, the legal foundation was laid for modern height and bulk regulations (Lai,1988:141).

In New York City, the consequences of height and bulk restrictions are strikingly visual manifestation of the influence of the "invisible web" of law on urban design. To preserve light and air in the vicinity of new construction, the 1916 zoning law specified for each district a maximum building height allowable at the property line in relation to the street width. Structures that exceeded this height were subject to regulations that stipulated successive setbacks of a certain distance with increase in height. At a specified point, the buildings were allowed to rise uninterrupted, provided each resulting tower covered no more than 25 percent of the lot area (Lai,1988:142). As a consequence of the regulatory envelope created about each building site by this setback rule, much of New York is still dominated by a peculiar skyline of pyramidal "wedding cake" buildings whose form has been determined more by the dictates of the setback regulation and the expediency of profit than by architectural design.

In 1961, as part of a comprehensive revision of the city's zoning resolution, a regulatory device known as the sky-exposure plane (SEP) was introduced, replacing the setback rule with an angle-of-slope description of the maximum physical boundaries allowed for high-rise structures. The 25 percent limitation on tower construction was also modified to permit 40 percent coverage of the site. To monitor structural size, restrictions were placed limiting the floor-area ratio (FAR) of buildings to a specified multiple by which interior floor space can lawfully exceed the area of the lot. A maximum allowable FAR of 10, for instance, permits the construction of a multilevel building with an interior floor space ten times the area of the lot, regardless of whether the structure is tall and slender, occupying only a small portion of the site, or short and squat, covering the full 40 percent lot area allowable for tower construction. The most controversial part of the 1961 resolution permitted relaxation of these restrictions to encourage developers to incorporate certain design amenities, such as plaza setbacks, at their building sites (Lai,1988:40) and (Kostof, 1992:184). Examples of such plazas are the Seagram Building and Chase Manhattan Bank.

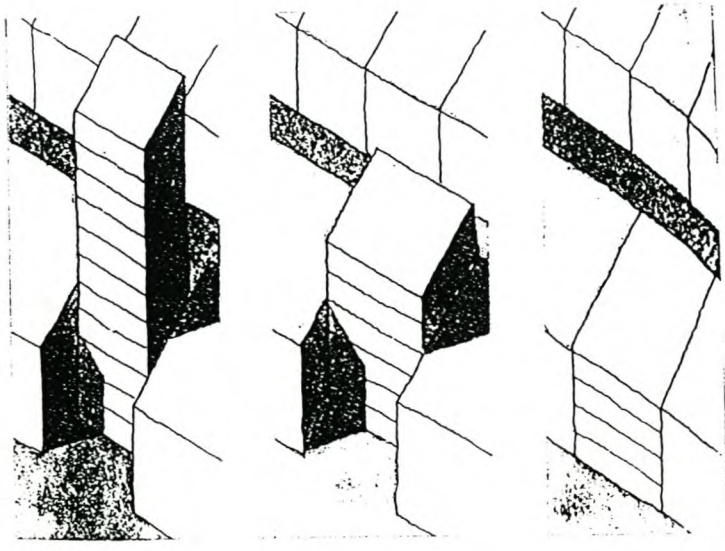


Figure 9: Zoning trade-offs (Kostof, 1992:184)

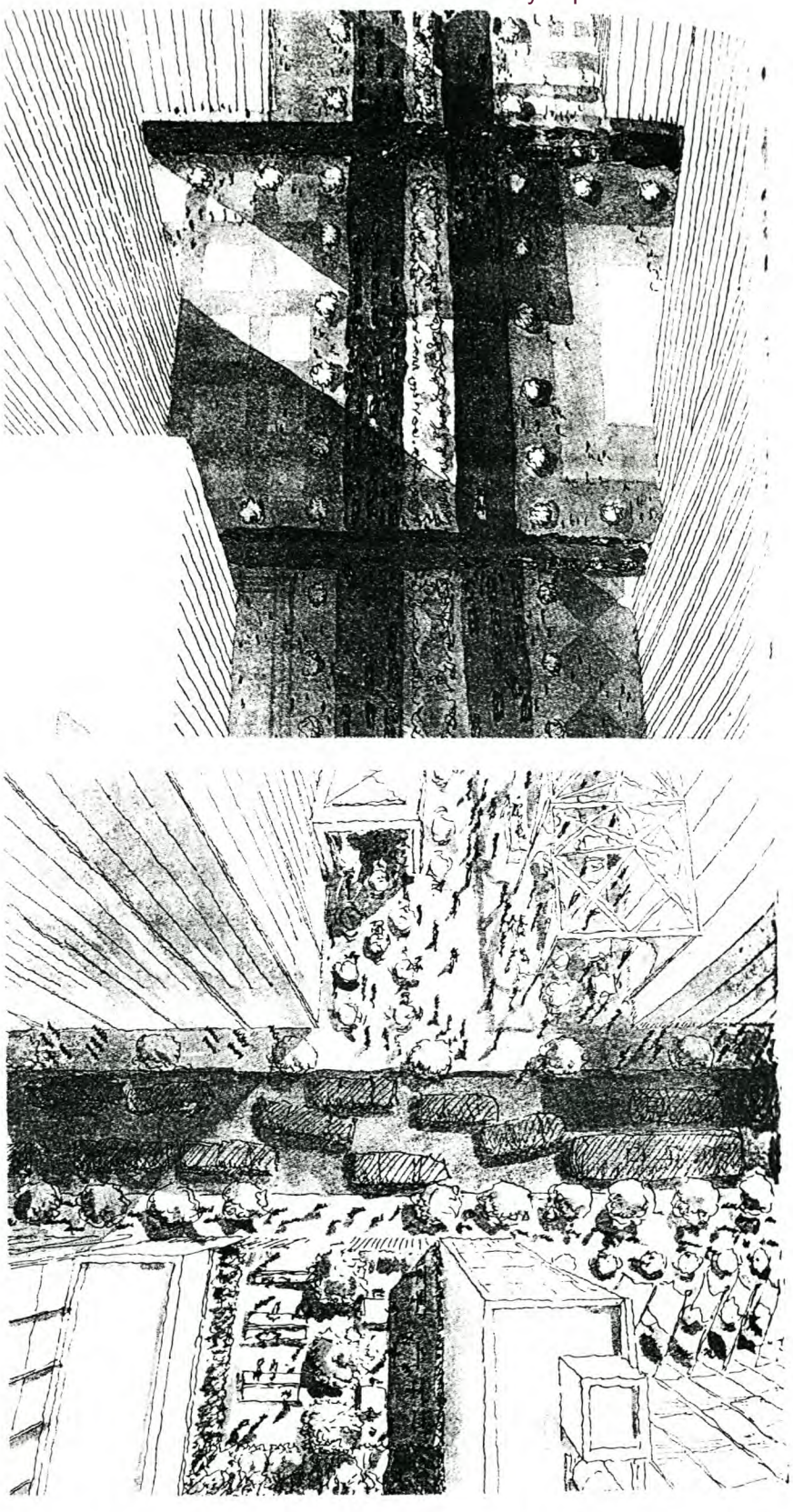


Figure 10: Stark public spaces resulting from the 1961 New York zoning code, and user friendly spaces encouraged by the 1976 revision of that code. (Kostof, 1992:184)

In most communities, building height, bulk, and setback are controlled by regulations not unlike those found in the New York City zoning code. Houses too must normally conform to height limitations and are usually required to be surrounded by minimum front, back, and even side yards. A new trend in some communities is the encouragement of "zero lot line" development in order to permit more efficient use of building sites, to reduce walking distances, to create a better defined public realm and to maximize urban land use.

Indeed, in some New York City districts where urban design policy seeks to encourage shopping-arcade development and continuity in retail-store frontages along streets, zoning actually promotes shopping and restaurant access at the "build-to" line, the converse of the plaza setback concept advocated in the 1961 resolution (Lai,1988:143).

2.4.3 The use of incentives

Early use of bonus FAR's was embodied in New York's 1961 zoning resolution, which permitted an increase in the interior space of a building in exchange for the provision of a pedestrian mall modeled after the "tower-in-a-plaza" paradigm inspired by Mies van der Rohe and Philip Johnson's Seagram Building on Park Avenue. Although the plaza bonus proved extremely popular with developers and was widely employed, its consequences in urban design were dubious and subject to considerable criticism. Since no specific design guidelines were set down, developers tended to construct plazas that set their buildings apart from their surroundings in the apparent belief that such isolation lent prestige and monumentality to their developments. As Costonis (1982:370) observes, this approach resulted in scores of bargain-basement Mies buildings – cheap, bland imitations of the original; disruption of formerly uniform street walls by redundant, windswept plazas; and buildings that are discordant in scale and bulk with their neighbours and with the streets on which they front. The cumulative effect of this

isolation of buildings was an urban design lacking in activity and human interest (Lai,1988:325).

In the latter half of the 1960s, however, an urban design group was formed as part of the New York City planning commission staff under the administration of Jonathan Barret. With the introduction of professional insight, the design deficiency of the plaza incentive was recognized, and the city began to improve and systematize the use of zoning incentives. The planning commission created special zoning districts for the purpose of establishing a more reasoned and coordinated policy of urban design. Of the many special districts eventually designated, the earliest ones are still the best known. The first to be created was the Special Theater District, which was formed to preserve and enhance the famous but deteriorating show district near Broadway. Zoning regulations in the district include a list of some forty theatres, none of which may be razed without special permission from the city. Restoration of these listed structures is encouraged by FAR bonuses of up to 20 percent, which are transferable to other lots proposed for new development or enlargement by means of transfer of development rights (TDR) (Lai,1988:325).

The Special Fifth Avenue District was created for the purpose of forestalling the gradual displacement of the street's famous retail trade by more lucrative office rentals. Zoning regulations reserve the lower floors for commercial retail use and restrict such retail office uses as banks and travel agencies. Continuity of the window-shopping promenade traditional to Fifth Avenue and of the street wall-frontage of building facades is being maintained through a mandatory requirement that structures be built to the lot line and be a minimum of 28 meters high. At one time, setback requirements distinguished between the east and west sides of the avenue, but more recent regulations place a uniform 42 meter height maximum on the lot-line façade (Lai,1988:326).

Along Fifth Avenue, the city attempted for the first time anywhere to break from traditional segregated land-use zoning by encouraging a mix of residential with retail and office use. Of all the design considerations eligible for additional floor-area allowances – plazas, through-block connections, covered pedestrian spaces, and landscaped terraces – the FAR bonuses granted for the inclusion of residential use in commercial buildings proved the most controversial. Since the early 1960s, planners have frequently advocated mixed land use as an alternative to single-use zoning. Probably the most notable was Jane Jacobs (1961:163), a leading critic of and theorist on the social implications of urban form, she listed mixed use as one of the basic conditions necessary to achieve the "exuberant diversity" which she argues is essential for a healthy and vibrant urban community. The other basic conditions she mentions are: short street blocks; a mixture of buildings of different ages and conditions and a sufficiently dense concentration of people. Safety would also be promoted by many inner city residents watching the streets and noting strangers

In response, a zoning incentive in the 1970's that permitted an increase of up to 20 percent in the allowable floor area of new buildings was introduced in the Fifth Avenue District, it stipulated that the extra space be devoted to residential or hotel uses. Although the regulation was initially well received and a mix of land uses was generated, the size and number of massive buildings that resulted from the bonus provision and other allowances eventually became subject to great public criticism. Finally in 1982, popular reaction led to the expunging of the bonus allowance from the zone. While the concept of mixed-use zoning was never faulted, criticism of the excessiveness of building size resulting from the combined use of FAR bonuses and transfer of development rights is justifiable (Lai,1988:328).

The Regional Plan association of New York (1969:8) identified three closely related ways in which the future of the CBD was being undermined, one of which was the visual form of the CBD. The visual form of the CBD was once

characterized by the clustered peaks which signify Manhattan to the world but it was gradually losing its distinctiveness and giving way to "slab city" – interminable rows of identical reflecting surfaces lined up along identical blocks, all thirty to fifty stories high. It is hard to sense one's location by means other than street signs, and new public spaces, comparable to Bryant Park, Grand Central Concourse, or Rockefeller Center, were not being created.

The 1961 New York City zoning resolution dispensed with the traditional "ziggurat" building shapes that had been most profitable to construct under the previous ordinance and encouraged instead setbacks at the street level. But these plazas cropped up haphazardly with no relation to a consciously designed progression of spaces and with no relation to the magnitudes of pedestrian movement in each place. Low buildings, over the tops of which tall ones can be seen and "read", were rapidly disappearing. Many were architectural or historical landmarks. The ancillary activities which the low buildings typically housed and which give flavour to the CBD – the restaurants, the bars, the specialty stores, the clubs, the studios and the theaters – often disappear along with the buildings. The 1967 zoning amendment encouraging the replacement of theaters displaced by office buildings in the theater district, was one of the few efforts so far to stem the full effects of "slab city" (Kostof, 1992:184).

The Regional Plan association (1969:122) wrote in their report that there could be brilliant urban design plans for Midtown Manhattan coordinated with future subway and other improvements and yet under the economic incentives of the then present zoning regulations the desired results would not be achievable. Many of the urban design recommendations of this report ran counter to what may be called "business-as-usual" private development practices which encouraged and sped up the building of slab city. Under the then current zoning regulations, a meaningless plaza unused by pedestrians enabled the developer to gain a bonus of floor area ratio while an essential underground pedestrian way

connecting directly to the subway may not be constructed because its construction yielded no financial benefit to the developer.

According to Lai (1988:330) special-district and incentive zoning in New York City has undergone many changes to improve its planning and design effectiveness and to rectify its faults. In lower Manhattan, zoning regulations in the special districts of Battery Park City and Manhattan Landing have been conceived in terms of the areas as a whole rather than on a building-by-building or site-by-site basis. For these two districts, a panoply of rules is being used that define varying building heights, front building wall lines, minimum distances between buildings, and sun and shadow standards. The purpose of these regulations is to guide new development towards achieving such urban design attributes as design continuity with existing streets, visual corridors created by building planes and open space, and visual permeability through such devices as open ground floors. The invisible web of these regulations leaves little to the piecemeal determination of individual developers responding to simplistic regulations governing their particular properties, an approach that has resulted more in fragmentary design of separate sites than in truly unified urban design.

In lower Manhattan, urban design is currently being regarded more as the design and articulation of urban space than the modeling of discrete architectural forms. This wide use of bonus incentives and special-district zoning to achieve urban design objectives has unavoidably contributed to the complexity of the New York City zoning law. There now exist over thirty special districts or subdistricts in the city. The city's zoning resolution is some 700 pages long, nearly three times the length of the San Francisco code and about ten times as long as Chicago's (Lai,1988:330).

2.4.4 Housing Codes

In America, as in Europe, social concern for the condition of low-income housing arose during the era of reform following the Industrial Revolution, leading in America to such landmarks in housing legislation as New York's Tenement Housing Act of 1901 which directly influenced the design of low- and moderate-income, multi-family housing as well as the physical character of urban residential districts. Lai (1988:149) cites the case of housing conditions in the Lower East Side of New York where although the area had relatively low-rise buildings, population densities in 1900 reached one thousand persons per acre (4 840 m^2), the highest recorded density in world history. Despite the city's first housing law, passed in1867 to prevent the worst abuses, tenements built and owned for profit were characterized by deplorable crowding of occupants and excessive coverage of building lots.

The design influence of building and housing codes was by no means restricted to the United States. During the early years of the century, housing-construction regulations were also enacted in Germany, the Netherlands, and Sweden (Kostof, 1992:57). In England, the dwellings resulting from government regulations even came to be known as "by-law houses" (Figure 5b). Building regulations also contributed to the distinctive style of construction in Paris under the Third Republic. To compensate for land usurped by Haussmann's grand avenues, a law passed in 1902 allowed unprecedented densities in the remaining land. Heights were limited only by a function of street widths, with a consequence that structures with more than seven floors were permitted. Roofs were designed after the style of the Renaissance architect Francois Mansart to allow for additional habitable space in the attic. As a result, higher buildings than ever before were constructed along the narrow streets of the medieval city. Earlier regulations passed in 1884 stipulated minimum interior courtyards, but the law of 1902 reduced these open spaces to mere airshafts, each measuring less than one-square meter. Motivated by commercial interests to maximize the economic

return on urban real property, the law permitted extreme building densities and population crowding through much of the city (Lai,1988:150).

Lai (1988:151) is of the opinion that the "invisible web" of building and housing codes, like planning and zoning law, currently in force is generally flawed and its imperfections create patterns of dubious consequence in the design of the city and its physical and social components. The Pruitt – Igoe housing project in St. Louis is an example of the failure of building and housing codes to create an environment that meets the social and psychological needs of its residents. Although this project received architectural awards for its design, it was razed to the ground in 1972 – less than twenty years after its completion – because it turned into a social slum (Holohan, 1982:329) (Figure 11).

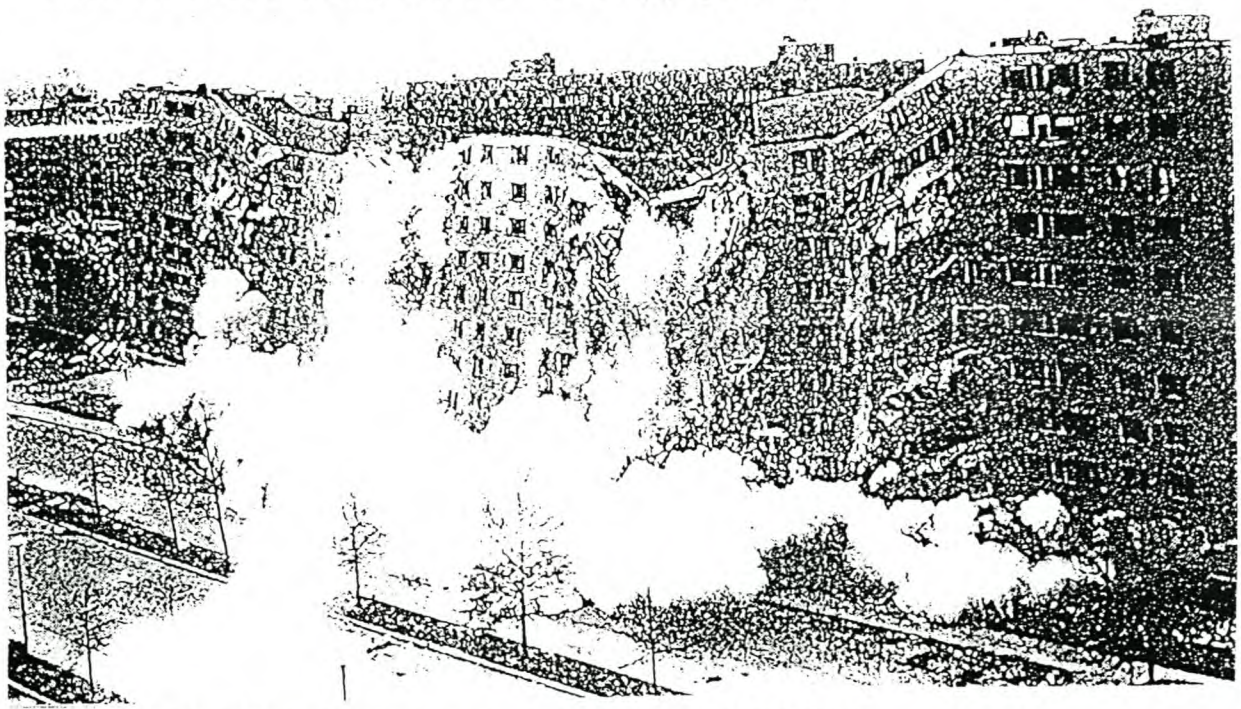


Figure 11: Pruitt-Igoe being demolished (Holahan, 1982:330)

If the planner and the architect are truly to determine the pattern of the built environment, they should participate with knowledge and vigour in the design and reform of the "invisible web" that effects so much of urban design and planning.

2.4.5 Aesthetic regulations

The advent of regulations pertaining to asthetics is taken to be found in a 1974 case upholding a police-power restriction on billboard advertising, *Westfield Motor Sales Co. v. Town of Westfield*, New Jersey Judge Harold A. Ackerman said: "Embodied within the theory of police power is a concept of 'utilitarianism', a theory balancing individual rights against the general welfare of the community." According to Lai (1988:195), regulations furthering urban aesthetics restrict the free use of property. The community good that arises from a restriction serves in the end to benefit the property owners also, including the individual owner suffering immediately from the regulation. From one perspective, the danger is an incremental erosion of individual rights; from another viewpoint, however, the benefit of an urban community's aesthetic and design qualities resulting from a restriction serves the best interests, including the financial interests, not only of the whole community but also of the individuals, including the property owners of which it is composed.

As New York Court of Appeals Judge John Van Voorhis noted in 1963 in an oft-quoted dissent (*People v. Stover*, 1963):
"Aesthetic considerations, in a certain sense, underlie all zoning, usually in combination with other factors with which they are interwoven. Lot area, setback and height restrictions, for example, are based essentially on aesthetic factors."

The history of police power regulation of aesthetics in American planning in this century may according to Lai (1988:197) be divided into three general periods. During the early years, aesthetic controls were generally regarded as an unlawful exercising of the police power. The middle years saw controls framed in terms of other, more traditionally acceptable regulations, falling within the purview of police powers even where the true motivation may have been primarily aesthetic. He is also of the opinion that even today, this practice has not been entirely

discarded, although currently aesthetics as such are gaining legitimacy as a basis for police power regulation, notwithstanding recent considerations of First Amendment guarantees of freedom of expression. Also, as seen earlier in some states, the requirements for developers to report the anticipated environmental impact of their proposed projects can effectively function as a means for aesthetic regulation. While trends are evident, the history of police power regulation is by no means without overlaps and reversals. Nor has the issue been isolated from changes in social and legal perceptions.

That aesthetic considerations should warrant police intervention began during the 1900s when the automobile was just becoming a part of American life. With plentiful resources in petroleum and an open landscape beckoning, a steadily increasing portion of the populace took to the newly constructed roadways in pursuit of profit and pleasure. Television had not yet made its appearance, and the newly emergent advertising industry recognized the opportunity to exploit the outdoor urban and roadside environment to their advantage through the erection of billboards.

During this period, thousands of outdoor advertising signboards were built in the cities and along the highways of the nation. As the age of the automobile matured, the waste of a society bent on industrial production also spawned the automobile and industrial salvage yard. Ugliness spread throughout industrialized America. With preservation of the aesthetic quality of the public outdoors at stake, the issues of environmental aesthetics, billboard advertising, and junkyards became the subject of vigorous litigation (Lai, 1988:197) and (Duerksen, 1986:27).

During the early years, judicial response to regulatory attempts to curb the tide of billboards and junkyards was hindered by the traditional doctrine of public non-interference into the private use of land (Lai, 1988:197). However, as the threat of visual blight became increasingly apparent, public pressures for controls

increased and court attitudes began to change. In 1911 it was decided in a court case *St. Louis Gunning Advertising Co. v. City of St. Louis*, that the signboards and billboards upon which this form of advertisements are displayed represents "constant menaces to the public safety and welfare of the city; they endanger the public health, promote immorality, constitute hiding places and retreats for criminals and all classes of miscreants. They are also inartistic and unsightly" (Lai, 1988:198).

According to Kostof (1992:204), many billboards rested on the ground, and the spaces behind were used for dumping ground. They obstructed light, sunshine and air. But these considerations were secondary to the concern with the unwholesome nature of the messages advertising products like liquor, tobacco and lurid-sounding plays (Figure 12).

Figure 12: Billboards of a disreputable nature (Kostof, 1992:204)

In 1965 Congress enacted the Federal Highway Beautification Act (23 U.S.C. 131) to establish a national policy and programme for the control of outdoor advertising along federally funded interstate and primary highways (Duerksen,1986:31).

Currently, aesthetic controls are usually upheld, if not exclusively on aesthetic grounds. Some courts are cautious in accepting aesthetic alone as the sole basis for regulation, possibly with justification. Lai (1988:217) holds that in practice a community's success in gaining court approval for aesthetic regulation of billboards and junkyards may hinge on its administration's ability to gauge prevailing judicial attitudes, and on its skill in legislative draftsmanship.

In South Africa, Britain, America and Western Europe control mechanisms came into existence because of the basic needs of the community to guarantee the safety and well being of the people. These needs later evolved to include aesthetic values and a quality environment. The evolution of control mechanisms in the different countries is quite different in terms of the rate and manner in which they evolved, as seen in this chapter. This can partly be attributed to the difference in cultures and law systems. In the following chapter these differences and the influence they have on the application of control mechanisms are discussed.

CHAPTER 3
THE APPLICATION OF CONTROL MECHANISMS IN DIFFERENT COUNTRIES

Government at central and more specifically local level can use a variety of control mechanisms directly or indirectly to influence the appearance of the urban environment, with different approaches towards the use of control mechanisms depending on the culture of that society. By way of illustration the influence some of these control mechanisms have on the urban form in the UK, United States, and South Africa are reviewed in this chapter.

Hall (1996:1) in the following quotation, expresses the correspondence between the needs of inhabitants for order and beauty in their environment and the regulatory means through which it may be attained: "All people use buildings and the spaces between them and their arrangement and appearances have an effect on both the functioning of people's daily lives and their aesthetic pleasure. It would, indeed, be surprising in a sophisticated society if there was not some public concern for quality in these matters and a desire that the machinery of government should, in some way, attempt to ensure that this quality is maintained".

In Britain the planning system deals with design issues through three sets of documents: development plans, design guides and design briefs. These documents rely on the advice from the Department of the Environment on design considerations (Madanipour, 1996:171).

In the United States, the design control process, or design review, covers urban design, architecture, and the visual impact of proposed developments. It is the process by which private and public development proposals receive independent criticism under the sponsorship of the local government unit, whether through

informal or formalized processes. Madanipour (1996:177) notes that despite signs of converging trends, the main difference between the British and the American planning and design control is that the former is discretionary, whereas the latter is based on written regulations.

In South Africa all development must be approved by the local authorities in compliance with procedures set out in legislation pertaining to Town Planning Schemes, Integrated Development Plans, Integrated Development Frameworks and Land Development Objectives of the municipality or if it complies to the other alternative or additional conditions which the municipality requires.

According to Madanipour (1996:177) the main method of regulation, with most influence on the shape of American cities, is the zoning system of land use control. A classic example is the Chicago Zoning Ordinance, which lists 22 types of use-district and 71 categories of floor-area ratio. The bulk of the ordinance deals with prescribing dimensions, beyond which there is no other reference to design and aesthetic objectives. An alternative way of controlling design is to follow a "stylistic imperative", where the developments are asked by the planning authority to harmonize with the surrounding architectural styles. A call for stylistic harmony can also be seen when landowners act as the planning authority: subdividing their land and asking the individual developers to follow some design rules. An example of this type of control is seen in the home-owners association of Mission Viejo outside Los Angeles, where 75% of the development consists of building in the Spanish style (Lockwood,1992). The status of design review boards may vary in legal and administrative terms: some may be appointed by a mayor, some may be provided for in local ordinances or in State legislation. The courts have the capacity to intervene in the design review process.

Whether broadly couched or spelt out in detail it is clear that to achieve design coherence and meaningful design objectives, it is necessary to formulate and implement long-range policies so as to direct the development of the urban

environment: coherence in design cannot be achieved through a haphazard or piecemeal approach. According to Lai (1988:1) the urban design and legal system that characterize a society are threads of the same cloth. The nature of law and the design of cities inherently reflect and contribute to the parent culture. It is therefore worthwhile to examine the difference between the control mechanisms of the United States of America, the United Kingdom and South Africa.

An new frontier of urban design is being opened up in such cities as New York and San Francisco – urban design through public policy and regulation, or urban design in the comparatively new tradition of American city planning that recognizes the constraints to centralized determination and planning power that are posed by social pluralism and private rights guaranteed by the Constitution. Significantly, urban design through public policy and regulation assumes particular relevance when investment capital is lacking for public improvements at urban scale. However, to be effective in this emerging form of urban design, the designer according to Lai (1988:8) should acquire new perceptions, skills and training in the law, as in America great value is placed on the individuals freedom of expression which poses a different problem for urban designers than in the U.K. where centralized control is not frowned on as much.

In a market economy like that of the United States, market forces and pluralist enterprise are at least as determinative of the aesthetic quality of urban land development as are public building and design. As a consequence, the governmental role in urban design and aesthetic considerations is frequently accomplished more through regulation of private development than through actual public works. One of the most direct forms that public regulation can take is the local process of official board review of the architectural design of proposed private development (Lai, 1988:279).

Hall (1996:1) stresses that design control has been a matter of great controversy within the architectural and planning professions, with both groups frequently being at loggerheads and to compound matters governments showing apathy, and sometimes hostility, towards the whole idea.

A comprehensive critique of British design control is found in a letter written to the *Architects' Journal* by the modernist architect Peter Moro, following the rejection off one of his designs for a modern house in the countryside. In his letter Moro (1958) notes the negative attributes of aesthetic control as follows:

- It stifles architectural expression.
- It encourages uniformity and discourages contrast.
- It causes hardship to those affected – client and architect.
- It usually discriminates against those who are exercising their traditional right of wanting to live in a house of their time.
- It gives undue power of judgement to officials without aesthetic training.
- It smacks of totalitarianism and is, in fact, a characteristic adjunct of such a form of government.
- It is humiliating to the architect, and makes nonsense of his professional status.
- It puts into an invidious position those architects who lend themselves to the distasteful task of sitting in judgement over their colleagues.
- It rarely stops bad conventional building.
- It often stops good unconventional building.

Notwithstanding the relevance of some of his criticisms, and accepting the particular sources of his frustration, it is on the one hand nonetheless a revealing statement about architects' attitudes to external and peer group criticism, and to the planning system at large. On the other hand however, it highlights some real concerns about whether the practice of design control does not indeed stifle architectural expression and good innovative building.

These issues have yet to be resolved and quibbling goes on unabated. Lightner (1991) for example expands on the longstanding criticisms of design review process and puts forward the most detailed attack on design control since Peter Moro's letter. She maintains that:

- Design review stifles innovation and fosters mediocrity.
- Design review is too arbitrary and guidelines are too vague.
- Design review infringes on private property rights.
- Design review does not coherently and holistically address the aesthetic attributes of the environment focusing only on selected elements.
- Design review reinforces cultural bias (usually historicist, white, male, European).
- Design review homogenises the city and reduces its diversity.
- Design review violates freedom of expression (first amendment to the US Constitution).
- Design review is a tool of political expediency legitimising some forms of development while discriminating against others.
- Design review invites abuse of the designer with no appeal to a higher court (not applicable in the UK).
- Design review responds to an ugly environment by "papering over" the cracks and disguising patterns of life that need addressing.
- Design review obscures more fundamental concerns of environmental impact, energy consumption, social need and social equity – it is essentially facadist.

Punter (1992:10) supports her contentions and notes that at the heart of her criticisms there are a few key issues such as cosmetics, disguise, discrimination, anti-diversity and contextual obsession that together constitute a series of interlinked arguments about the superficial nature of design control, its failure to address broad environmental and equity questions and the consequent loss of diversity.

However Punter and Carmona (1997:39) maintain that in response to Moro and Lightner's criticisms it is possible to make a case for control in equally dogmatic form. Pursuant to their view they note the following:

- Design control prevents "outrages" and stops much bad building, but this achievement is not visible to the public.
- Design control raises the standard of much development by ensuring that more thought goes into its design.
- Design control encourages the architect to stand up to his/her client, who may often want only the cheapest building.
- Design control is a democratic process (of sorts), because it incorporates the views of the public.
- Design control is accountable because decisions are made by elected representatives.
- Design control provides a necessary bridge between lay and professional tastes.
- Architecture is the most public of arts, and it is the local populace, rather than the client (very often), who are required to "live" with the building after completion.

Regrettably it is hard to measure the so called "added value" which may result from design control, although this has previously been attempted in a very detailed study of Bristol, which concluded that enlightened and consistent design control can help to ensure a higher quality of environment (Punter, 1990 and Luck & White,1994:24).

Punter and Carmona (1997:80) contend that within the broad field of urban design four kinds of influential thought can be identified as having penetrated British practice:

- **Townscape** – a concern with the visual qualities of the buildings in a settlement, the spaces they create, their relationship with natural features and how these can be manipulated to best aesthetic effect;
- **Public realm** – a concern with the social use of the public and semi-public spaces and streets within a settlement, and how such areas can be designed to promote an attractive and safe environment, efficient circulation and a full range of pleasant social experiences;
- **Public perception** – a concern with the perception of settlements, spaces and buildings, the "image" of the place, its relationship to orientation (legibility), accessibility, evaluation, public attachment and behaviour, and its implication for the design of the townscape and the public realm;
- **Ecological dimension** – a concern with the natural environment of settlements, both visible and invisible (e.g. incorporating air quality, noise etc.).

All of the above can be achieved through the selective use of appropriate control mechanisms to ensure that the urban form does indeed accord with the above concepts.

It is true that design policy in Britain has generally embraced considerations relating to townscape; has in the last decade come to recognize public realm issues; is attempting to embrace public perception issues, and has made a start with considering the ecological/sustainability issues (Punter & Carmona,1997:81).

According to Hall (1996:9) what is notable about British practice is that whereas detailed design control, especially the regulation of the external appearance of non-historic buildings, is not provided for explicitly in the legislation (or many statutory development plans) it is nevertheless, a major feature of the day-to-day operation of town and country planning in Britain and is pursued with vigour by development control officers.

It is surprising that urban design policies in English local plans are by and large lacking in attention to a number of key topics that would normally be considered as central to design control. This may well be because the conceptions of urban design with which policy-writers are working still remain locked into the visual tradition, focusing on matters of townscape and ignoring many social or activity aspects. A comprehensive and balanced conception of urban design conceived as operating at a variety of scales and spheres would ensure that design responds appropriately to its context. The interpretation of that context in a perceptual, visual, social and functional sense, becomes a necessary prerequisite for effective policy. However, central government still holds the view that local authorities should concentrate on broad matters of scale, density, height, massing, layout, landscape and access in developing their design policies and advice (Punter & Carmona, 1997:197) – clearly this reflects a potential resistance to change.

This notwithstanding, change and adaptation are inevitable and just as the first quarter of the twentieth century saw the development and acceptance of zoning as a planning tool of local government, the closing quarter witnessed the gradual acceptance of local government authority exercising regulatory powers with the express purpose of gaining positive and definite ends in design. Lai (1988:241) believes that the conception of the police power in the interest of public necessity and public health, safety, and morals has gradually expanded to embrace consideration of public welfare, economy, and even convenience. Not least, the idea of beauty has gained ever-increasing legitimacy as grounds for police power regulation. The objective need not be limited to such purposes as the purging of eyesores like billboards and junkyards or the preservation of historic and architectural landmarks. It can extend to the design control of private development to ensure conformity to community preferences in architecture and to enforce public goals in urban design.

Municipal zoning officials have been wary of using grounds of public welfare to justify community regulation of architecture and urban design. However, Jesse Dukeminier (1955:225)) has associated aesthetics with a diversity of values beyond its own intrinsic worth, from power, wealth, and community health to patriotism. He wrote that zoning regulations may, and often do, integrate aesthetics with a number of other community objectives, and that it should be emphasized that a healthful, safe and efficient community environment is not enough. More thought must be given to appearance if communities are to be really desirable places in which to live.

Pursuant to this Lai (1988:246) notes that the effect of environmental aesthetics on public health, especially on psychological well-being, has gained increasing recognition over the years. The social significance of environmental psychology is now so well established that virtually every legal commentary concerning community aesthetics makes reference to some psychological study. However beyond psychology and public health, an even stronger argument for aesthetic regulation can be made from economic considerations. This has been shown to be the case in the control of billboards and other visual nuisances, where the economic argument has been particularly effective as a justification for the regulation of architectural design. In cases where tourism or other similar income producing activity can be affected by environmental appearance, aesthetics is of economic concern because of factors external to the property itself. Furthermore the more beautiful and desirable a property, the greater its financial value, regardless of such external factors as tourism (Lai, 1988:247).

Furthermore Lai (1988:251) notes that despite the reasoning that economics is a somewhat light argument, from a realistic standpoint, any lawyer arguing on behalf of community design controls would include economics as a substantive justification for regulations. It can be convincingly argued that the economic consequence of a building's appearance on neighbouring properties is a valid public concern, and as a practical matter, the effect of a design on economic

values is still a subject that can be addressed somewhat more readily by the courts than the aesthetic issue.

Clearly too, control mechanisms must allow for personal creativity, because without it the cityscape would reflect this inflexibility as a monotonous, boring environment. There is a fine balance that must be attained when regulating. A tract housing development designed solely to serve economic goals might be a legitimate object of aesthetic zoning regulation, while a home planned by an architect for his own use or for a client might not under American law (Lai, 1988:274). However, government-assisted low-income public housing may well benefit from design scrutiny as forming part of the public domain.

3.1 Enforcing stylistic preferences.

While some communities have adopted regulations requiring new buildings to be in design harmony with existing structures, numerous others have enacted ordinances actually specifying certain stylistic preferences. Lai (1988:295) contends that these stylistic standards which prescribe conformity in such considerations as material and colour can be faulted from a legal perspective as an impediment to free expression and from a design standpoint as being more an inhibitor of inventive and interesting design than an assurance of design quality. Undeniably there is a gap between established conventions of popular taste regarding such matters as domestic architecture and the designer's creed of seeking innovation and creativity in architectural expression. As Costonis (1982:424) observes, people tend to want a "cultural stability-identity" in their environment, whether to maintain historic architecture or recreate familiar if somewhat counterfeit surroundings. He notes that associational harmony, not visual beauty is what community groups primarily seek from aesthetic regulation.

This observation is verified by the Mission Viejo community outside Los Angeles (Lockwood,1992). The most important feature of this gated community is the

"theme" of the development that is in keeping with the Spanish heritage of the site. Mission Viejo means "old mission" and therefore the developers decided to create a replication of Spain. After twenty years of building in the Spanish/Mediterranean style the market changed and New England and French Eclectic styles became popular. In keeping with the times the developers allowed homeowners to build these architectural styles in new neighbourhoods.

This is supported by Lai (1988:295) in his contention that however much their neighborhoods are historically and regionally incongruous, many American homeowners prefer neighbourhoods composed of such traditional-style houses as New England Colonial, French Provincial, English Tudor, and Mediterranean to the exclusion of contemporary design and this is less the result of aesthetic judgment than a reflection of the socio-psychological need for cultural stability.

Even contemporary urban design can face the same threat of numbing uniformity in design where rational order through architectural controls is too stringently imposed. In *The Death and Life of Great American Cities*, Jacobs (1961:229) makes an argument that vitiates zoning itself. She contends that in seeking visual order, cities are able to choose among three broad alternatives, two of which are hopeless and one of which is hopeful. They can aim for areas of homogeneity that look homogenous, and get results depressing and disorientating. They can aim for areas of homogeneity that try not to look homogenous, and get results of vulgarity and dishonesty. Or they can aim for areas of great diversity and, because real differences are thereby expressed, can get results that, at worst, are merely interesting, and at best can be delightful.

The fundamental focus of design review should not, after all, be so much on the evaluation of individual building design but on whether a proposed design contributes to or detracts from the urban design context of the community environment as a whole.

In the past, adherence of individual buildings to common community norms in architectural design resulted largely from regional constraints in terms of culture, environment, climate, and the availability of construction materials and technologies. Today a plethora of universally available building materials and methods have put an end to such organically regulated local conformity in building styles. Today, design coherence in a community is usually the result of a more conscious community act, whether brought about by the volition or coercion of developers and their architects (Lai,1988:309).

It is important to have knowledge of what people want from the environments in which they live. Two questions that need answering before control mechanisms are put in place are: what kind of urban quality does the community expect? What role must control mechanisms play in determining the urban form to the satisfaction of the people who live in that environment?

Urban design is seen as constituting the necessary core of design policies. Punter and Carmona (1997:141) stress that in practice good design policies have moved beyond a preoccupation with the control of external appearance to seek a more fundamental role for urban design as a professional discipline: one that is concerned with buildings and the spaces between, the public and private realms – not just with the way things look and the aesthetic experiences that they provide, but with all aspects of human needs in the external built environment. These include aesthetic needs for quality architecture, townscape and landscape, but they also embrace needs for creativity, self-esteem, a sense of belonging to a place, safety and security, shelter and a healthy environment. Thus they embrace issues of recreational spaces, public spaces and activities, community identity and legibility, safe and accessible streets and spaces, privacy and public contact, and healthy and comfortable urban environments.

According to Rowley (1998:154) functional urban design considerations include a concern to create a comfortable, convenient, efficient and safe public realm and

to meet the needs of the full range of users taking into account age, abilities, gender and race, and including those with professional skills, laymen, developers and users. He sees the quality of urban design as "... the product of the conscious and unconscious design decision of many different interests and individuals".

He sees the concerns of urban design falling into "four bundles of concerns" which reflect:

- functional and social use considerations;
- natural environment and sustainability considerations;
- visual considerations; and
- considerations relating to the quality of the urban experience.

Examples of functional and social use considerations are:

- the convenience, safety and comfort of pedestrians, car-users, cyclists and public transport users;
- the location and purpose of community or other public buildings and facilities within the development;
- the user-friendly design of the public and semi-public spaces;
- the signage of buildings and facilities;
- overlooking and privacy.

Examples of environmental considerations are:

- the effect of micro-climate on people's use and enjoyment of the public realm;
- wildlife support and nature conservation;
- pollution and waste control;
- energy efficiency;
- the potential for change;
- the ongoing costs of maintaining and managing the development.

Visual considerations include:

- concern for the ensemble and qualities of the buildings and spaces in a development or an area;
- the relationship of the development with its surroundings;
- the variety of buildings;
- the visual grain of the development;
- the human scale of the development;
- the density or intensity of the development.

Concern for the quality of the urban experience embraces:

- people's perceptions and experiences of a development;
- the image and "feel" of areas;
- the legibility of localities;
- the opportunities to discover and learn in the environment;
- the degree of freedom of access and action.

Hence, complexity, surprise, diversity of activities and users, vitality, a sense of time and historical continuity are some of the key aspects of the urban experience.

Greene (1992:177) is of the opinion that designers and planners still have problems, however, dealing with evaluations of the quality of community design – sorting out the range of opinions, developing explanations that justify design recommendations and communicating this to those interested in design issues. Her paper addresses these problems and fills a vacuum by outlining an urban or community design taxonomy for practitioner, citizens, and policy makers.

Greene (1992:179) does not attempt to provide a formula for designing or building beautiful and smoothly functioning environments; rather, she suggests

desirable qualities in the built environment. She stresses four major principles of community/urban design:

- **Function** requires that the design work effectively for the convenience and comfort of all its users.
- **Order** assures that users can become orientated to the environment and understand it.
- **Identity** denotes a visual image of the environment that reflects special or unique qualities.
- **Appeal** characterizes a design that gives pleasure to its users over time.

The taxonomy uses associated qualities to clarify and expand the meaning of each of the four principles. In turn, a wide array of guidelines defines each quality. The taxonomy encourages analysis of a comprehensive range of considerations within a hierarchy that highlights their sweep, intensity, and interrelatedness (Figure 13).

Principles	Qualities	Guidelines
FUNCTION The design should be usable by all.	1. LINKAGE	Access/Interaction/Overlap
	2. SECURITY	Safety/Privacy/Activity
	3. COMFORT	Physical Ease/Visual Rest/ Friendliness
	4. DIVERSITY	Choice/Variation
ORDER The design should be easily understood.	1. COHERENCE	Entrance/Edge/Landmark/Vista/ Skyline/Groundline
	2. CLARITY	Structure/Articulation/Closure
	3. CONTINUITY	System/Sequence/Rhythm
	4. BALANCE	Pattern/Emphasis
IDENTITY The design should be distinctive and recognizable.	1. FOCUS	Visual Focus/Activity Node
	2. UNITY	Concept/Repetition
	3. CHARACTER	Integrity/Simplicity/Restraint/Style
	4. SPECIALNESS	Historical Quality/Symbolism/ Singularity/View
APPEAL The design should be pleasing and attractive.	1. SCALE	Human/Humanizing
	2. APPROPRIATENESS	Proportion/Authenticity/Familiarity
	3. VITALITY	Stimulus/Contrast/Tension/ Movement/Sense of Humor
	4. HARMONY	Light/Color/Texture/Line/ Sound/Smell

Figure 13: Community design principles, qualities, and guidelines (Greene, 1992:1790).

According to Montgomery (1998:103) the city must be allowed to grow organically. This means that the mechanisms controlling the city must be flexible. In designing a city, it is essential to consider form, activity and image in tandem and progressively. He proposes the following physical conditions for making a city:

- development intensity;

- mixed use;
- fine grain;
- adaptability;
- human scale;
- city blocks and permeability;
- streets: contact, visibility and horizontal grain;
- public realm;
- movement;
- green space and water space;
- landmarks, visual stimulation and attention to detail; and
- architectural style as image.

Montgomery's paper is not intended to be a master plan but rather an illustrated discussion of the qualities of successful urban places.

Today we have an array of regulatory and disciplining factors that control the building of our communities. But they are often not quite the right ones, because they may be obsolete in terms of today's problems and expectations of the urban form. They may assure the maintenance of property value and more livable individual houses, but they are not producing sounder community values or more livable cities. Spreiregen (1965:184) contends that it would be impossible in most of our communities, under their existing regulatory laws, to re-create another Bath Crescent, Place des Vosges, or central Edinburgh. It would even be difficult to re-create a New England village green because of the "mixed use". He poses questions as to how many innovations could we succeed in building into our communities, let alone re-creating the better examples of the past. Current zoning, setback, and minimum lot size regulations, in fact, dictate design. They prevent artful grouping, rhythmic spacing, clustering, and relief – the essence of artful site design. How can we obtain such designs? What new slant is needed in the practice of regulatory design? He notes furthermore that whilst it is difficult to alter the regulatory factors governing the existing city on a piecemeal basis, we

have right now an opportunity to write new rules for creating truly livable new communities.

In South Africa this is also the situation. Although older forms of control mechanisms may still be in place, we are moving forward. A number of local authorities are reviewing more flexible approaches. The acting area coordinator of the municipality, Blaawberg, said during an interview (Ms. Du Toit,12/09/2001) that they were moving beyond strict adherence to past mechanisms and because of a lack of an overall new approach, were evaluating development on a case-by-case basis. That the deficiencies of the older system are recognised is indeed promising but excess application of *ad hoc* measures also does not offer long term solutions, and could be inconsistent.

Experience elsewhere indicates that the process of change from the old to the new entails:

- a careful assessment of the factors that regulate community design
- an understanding of the regulatory forces at work and their real effects
- the formulation of concepts for creating new communities.

It is through this process that regulatory techniques are developed and not *vice versa*. The process is aimed at singling out the most relevant regulatory factors and provides a basis for designing of new strategies where needed.

Spreiregen (1965:185) notes in addition, that pervading this approach to establishing relevant and helpful regulatory techniques should be the goal of coordinating presently isolated actions varying from project to project. A single part of a community should not be designed in isolation, out of context, just as the mechanical system of a building should not be designed apart from its structure or function. The single most important thesis to follow is that we should direct our regulatory programmes around community-building lines rather than individual-house or single-building lines. Most importantly, we should understand

that while no regulation can ever substitute for good design, good design on a city-wide scale is impossible without sound regulations.

Spreiregen (1965:188) is furthermore of the opinion that the best solution to the restrictive regulations is to replace them with positive and creative design concepts to which the public can enthusiastically respond: the public's respect and confidence in the design of the community has to be earned, conversely the public has to want urban design and has to be willing to pay for it. If restrictive regulations have temporarily overshadowed the attainment of acceptable design quality, it is because the initiative has not been taken to establish good community design or to educate the public as the forerunner of regulatory tools.

Different countries have different law systems and approaches towards urban design and design control which determine the form of the urban environment. In this chapter the importance of an integrated approach towards urban design and the attainment of design objectives is stressed, because no coherence in design can be achieved without it. It is important for the urban designer or planner to be familiar with the control mechanisms he or she has in hand to be able to develop an integrated urban design policy. In the following chapter these control mechanisms are discussed in greater detail.

CHAPTER 4
TYPES OF CONTROL MECHANISMS

The different elements of the urban form – height, density, bulk, environment, ect. – are controlled by different control mechanisms. These control mechanisms can be used on their own or in conjunction with other control mechanisms in an attempt to achieve the desired urban form. In this chapter the different control mechanisms and how they are used are discussed.

4.1 Controlling height

Height limits are the primary but not the only means for controlling height. Sun access angles designed to assure direct sunlight to a park for example work in a similar way. Bulk controls governing the maximum horizontal dimensions and/or floor area also influence how high a developer may build, but are more uneven in their effect. Density controls in and of themselves cannot be relied upon to limit height unless linked to maximum lot size or specific building types (Hedman & Jaszewski, 1984:110).

The need for height controls too often becomes apparent after irreparable damage has been done. San Francisco did not put its city-wide height controls into effect until after a dozen or more towers and slabs were erected in incredibly sensitive areas and the city was threatened by larger, even more disturbing proposals. An urban design disaster may facilitate political action, but it does not result in the best plan. Height limits imposed after errors are made help ensure that more damage is not done, but do not correct the damage. A misplaced tall tower often presents the urban designer with frustrating design dilemmas (Hedman & Jaszewski, 1984:110). The three towers at the foot of Table Mountain illustrate the intrusiveness of this sort of structure (Photo 1).

Photo 1: Three towers against Table mountain

The Table View area in the City of Blaawberg municipal area is an example of how an absence of height controls completely changed the urban environment. According to the Table View Town Planning Scheme there is no height limit, the only limiting factor is the permissible floor area. The result is that the erven running parallel to the seafront are built to the maximum permissible floor area. This allowed the developers to develop flat buildings ranging between 6 to 13 storeys in height. This form of development prevents any view of the ocean from sites directly behind the seafront sites in addition to having a dramatic effect on lowering property values here.

Photos 2 shows the detrimental effect of continuous high building street frontages on the view of the seafront in Table view from the sites directly behind.

Photo 2: Table view seafront – flat buildings blocking view of sites behind them.

Studies indicate that height controls are useful for distributing growth but are ineffectual in limiting growth except at the lowest height levels. Their impact is modified by land use controls, the height selected, and the demand for floor space. In a booming "hot" office market, every project will attempt to gain the maximum construction height permitted; in a weak economy, few projects may approach even moderate heights. That high towers can be built does not mean that every developer will take advantage of this condition; a special set of circumstances is required. Developers may build lower than the maximum height permitted when it is in their economic interest to do so. In those districts with higher height conditions, the actual physical results to be obtained may be difficult to project as demand changes with economic cycles. This form of control is more effective at limiting height from going above a specified elevation than in insuring that buildings are indeed built to the specified height (Hedman & Jaszewski, 1984:112).

The impact of high buildings upon the urban skyline necessitates that their location should be both justifiable and appropriate, and that their grouping, and their combined effect, should be carefully considered. A high structure or building immediately suggests, or should suggest, an appropriately important location rather than a random placement. Groups of high buildings should thus be even more sympathetically and justifiably placed; their presence and effect *en masse* on the skyline is of unambiguous significance. The city center of Cape Town, provides an excellent example of confinement of nearly all its high rise commercial buildings to within a clearly defined Central Business District (Parfect & Power, 1997:65) (Photo 3 and 4).

Photo 3: Cape Town CBD – grouping of buildings

Photo 4: Aerial photo of Cape Town showing in the foreground the Victoria and Alfred Waterfront and behind it the grouping of the high-rise buildings of the CBD (photo: Neil Austen).

San Francisco's experience with the height districts (established in 1971) illustrates the problems that can be encountered when developers choose not to build to the maximum permitted in the highest height district. The plan permitted towers 233 meters high to be constructed in the heart of the financial district. It was hoped that at least one project would be built to that height to form the peak of a man-made hill of buildings and give needed balance to the dominating mass of the Bank of America Building on the northern fringe of the core. In practice, however, a row of towers all in the vicinity of 200 meters, resulting in a flat skyline at that level was built. A few years later the nature of the high-rise market and architecture changed toward an increased emphasis on prestige qualities. Unfortunately, the change came too late for the key sites in the highest height district had already been built on.

The lesson is clear: Height limits are more effective at achieving sculptural form objectives within the typical height range of construction. To depend on the exceptional building to occur at the right place and time is to depend on luck. The

need for height limits is not limited to only rapidly growing high-density districts, as the random disposition of high rises in some low-density suburban areas shows. The visual effect of odd-shaped towers dotted across the landscape with no apparent organizing order compounds the chaos of much fringe development. These random forms cannot be easily retrieved or translated into a future state of wholeness and order (Hedman & Jaszewski 1984:112).

Height limits can cause problems in themselves in that with all buildings in a particular height district being built, the resulting benching may be visually damaging to the setting. Hedman and Jaszewski (1984:113) recommend that when benching is not desired, it can be minimized or eliminated simply and directly by avoiding extended horizontal height districts and creating many small and varied districts (Figure 14).

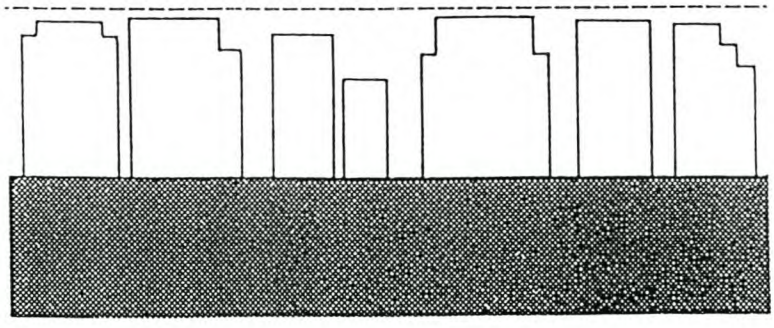


Figure 14: The effect of benching resulting from fixed heights, which may be visually damaging in some settings.

The Milnerton area in the City of Blaawberg municipal area has no height restrictions, choosing rather to control height by using permissible floor area (Floor Area Factor). This tends to create problems, however, when trying to control and influence the urban form as illustrated in the two extreme examples of the Trade Center and the Millpark building, both having been built to the same

permissible floor area. Because of its height the Millpark building is a landmark in the Milnerton area towering above all the other buildings (Photo 5).

Photo 5: Millpark building on the right.

Because of the nature of the business the developers of the Trade Center building used all the permissible floor area on ground level that resulted, because of its bulk, in a building that dominates the urban form (Photo 6).

Photo 6: Trade Center building

A more "exotic" approach is to treat height district boundaries like contour lines, with height graduated between the elevations represented by the lines. Drawing the height contour lines can be difficult in complicated situations, and substantially the same effect can be achieved through selective application of transitional zones to standard height districts that eliminates many mapping problems (Figure 15). The transitional zones define a tapered height zone eliminating the abrupt step between one district and another except where desired for design reasons (Figure 16)(Hedman & Jaszewski, 1984:118).

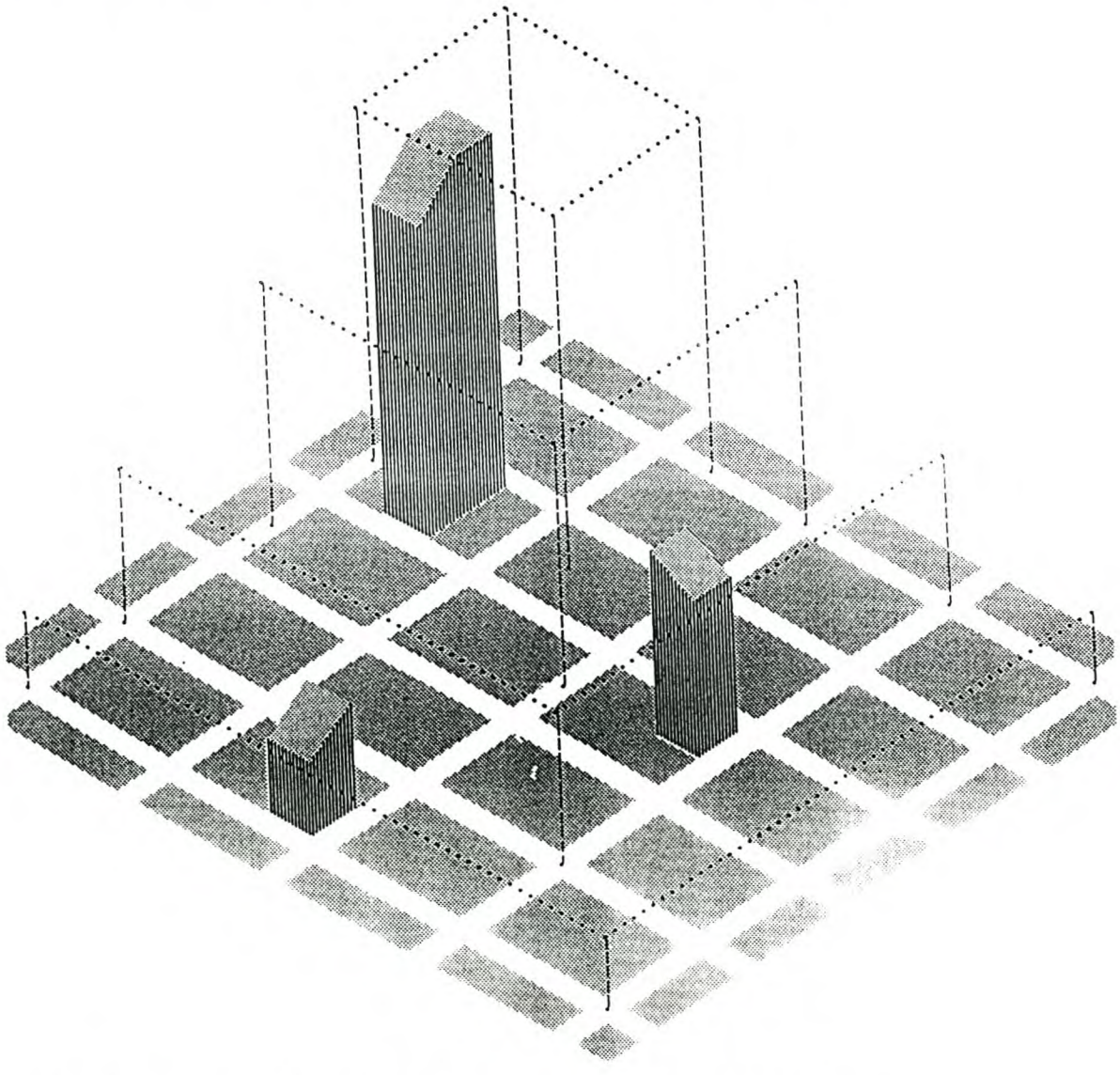


Figure 15: Building height contours (Hedman & Jaszewski,1984:115)

Building height contours would delineate a potential volume the same way land contours describe a hill. At any point, permitted building height would be proportional to the distance between contour lines.

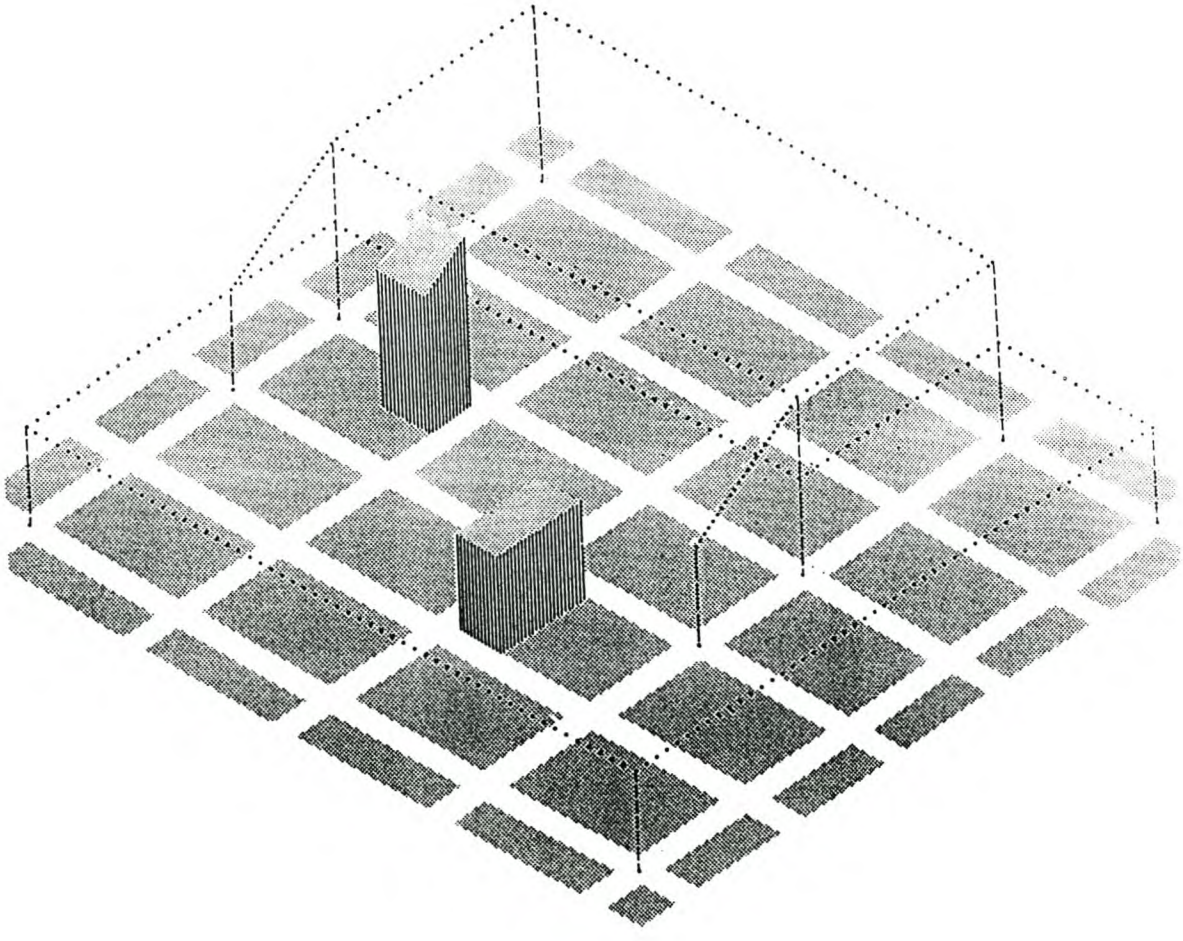


Figure 16: Transitional height zones (Hedman & Jaszewski, 1984:116)

Transitional height zones work in a similar manner as contours but can be applied selectively to standard height districts.

Even more complex and geometrically elegant is a point net envelope (Figure 17) which defines a volume by elevation set at each street intersection and other points as needed. Connecting scaled lines that extend vertically from these points define the envelope in terms of triangular or rectangular planes inclined at various angles. To determine exactly how high a developer could go on a given site would entail a good deal of calculation that could be a problem if all potential sites were not calculated in advance using an axonometric construct.

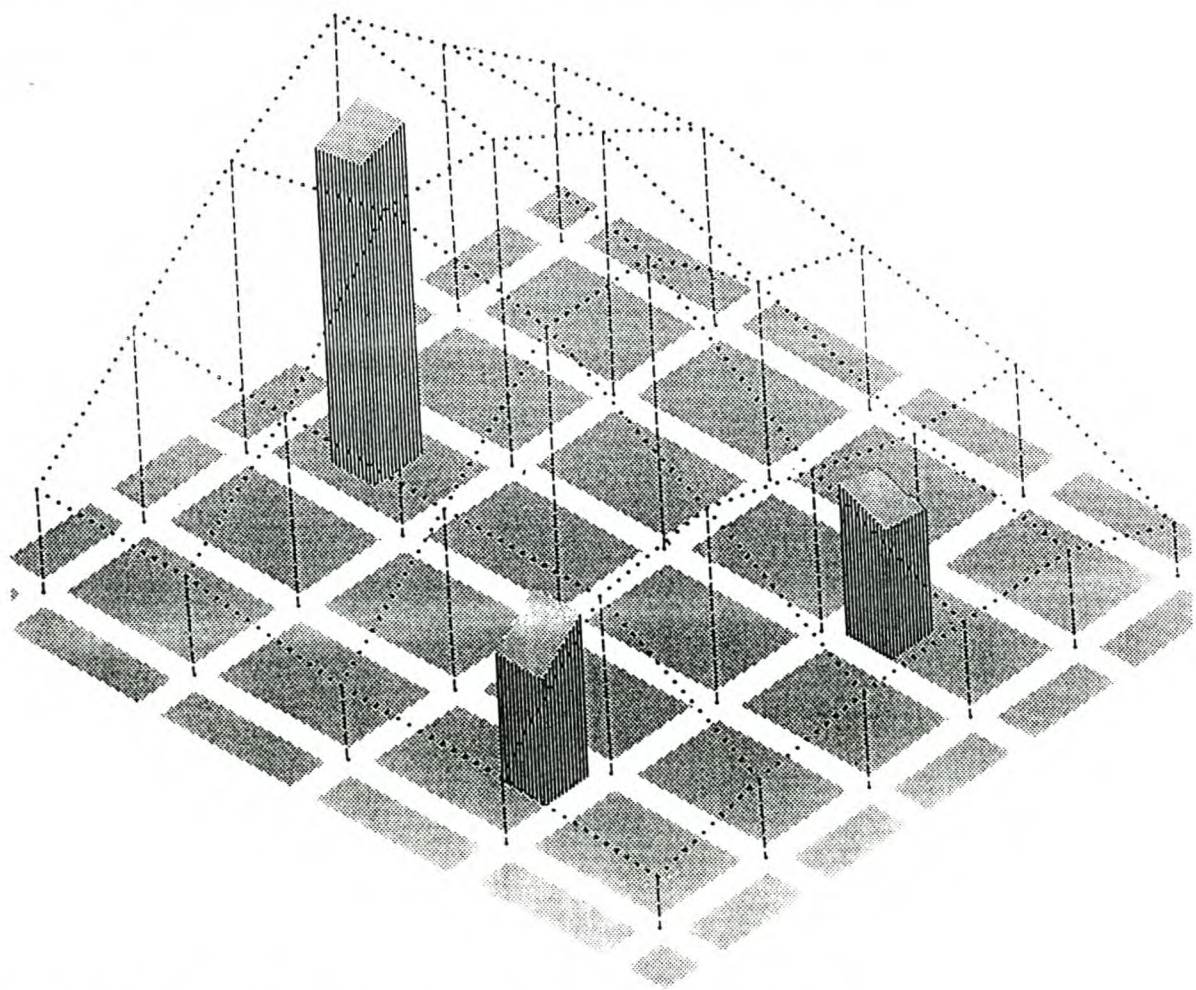


Figure 17: Point net envelope (Hedman & Jaszewski, 1984:117)

Another height control method permits addressing specific contextual form problems that might be encountered using standard height districting (Figure 18). A variable height extension offers the opportunity to increase heights up to a set maximum of total permitted height if the added height meets specific criteria. To obtain the additional height the developer might be required to demonstrate that the added height facilitates a graceful transition; helps achieve a superior contextual design, does not cast any additional shadows on public open space, or any other urban design quality as may be desired (Hedman & Jaszewski, 1984:118).

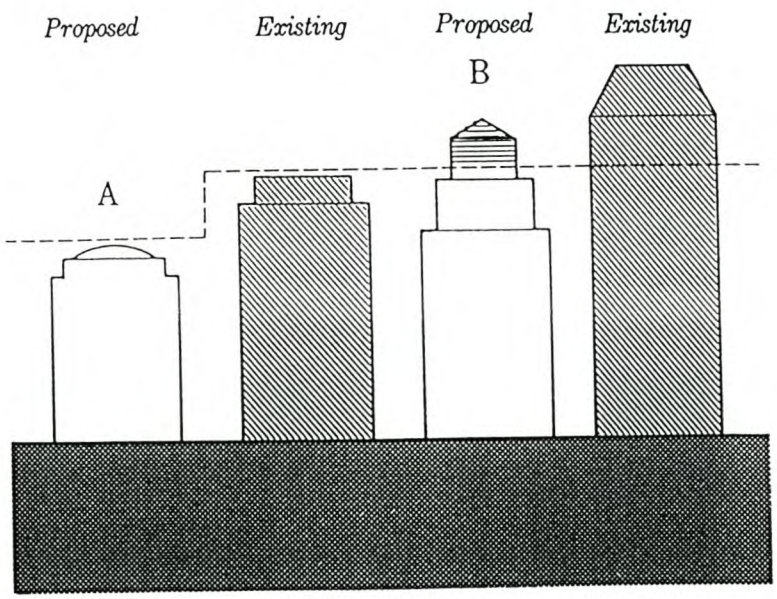


Figure 18: Variable height extension examples (Hedman & Jaszewski, 1984:118)

A: Added height may not be permitted, as it would work against, for example the desired stepping.

B: The project may be eligible to use the full permissible height extension as it permits the building to act as a transitional step between adjacent buildings.

According to Punter and Carmona (1997:165) those local authorities that continue to use plot ratios all feel the need to complement them with other controls. Building height is a much more exact control than storey height if one wants to ensure that development responds appropriately to the surroundings, especially as new office buildings tend to have greater storey heights. Height policy, like density policy, is framed in a variety of ways. Most commonly and least usefully in a bland statement such as "new buildings should not significantly exceed the height of surrounding buildings". Although flexible, these types of policies actually encourage over-development. Some authorities attempt to put blanket restrictions over the plan area, either through maximum storey height restrictions or through specific height limits, but these policies may be interpreted as too restrictive, and may also be given little weight at appeal. Generally, adjacent buildings and the character of the street will dictate an appropriate height, although there are circumstances where higher buildings can be allowed for townscape or urban design reasons, especially where they are of exceptional architectural merit.

Good practice would seem to indicate that height policy, like density policy, should be drafted flexibly, preferably defined on a "character area" basis. Valid reasons for departure from height limits should be clearly identified in the plans. In this regard Haringey's, a town in England, has a development plan which defines an excellent set of principles that most authorities might usefully adopt. It allows buildings to exceed the height of surrounding buildings if they:

* emphasize a point of visual significance;
* do not intrude on strategic or local views or skylines;
* are of outstanding architectural quality;
* relate to layout and landscaping;
* avoid problems of excessive overshadowing and of microclimatic disturbances;

* and do not cause a loss of amenity or prejudice the satisfactory development of adjacent sites.

Authorities should identify areas of particular sensitivity where specific height restrictions are appropriate (including development on ridges, next to major open spaces, in or near conservation areas etc.). There may be scope to identify opportunity areas appropriate for tall buildings – for example in parts of central business districts – but in these cases a clear strategy should be adopted so that tall buildings can be related to the skyline and to wider planning concerns of infrastructure and land use (Punter & Carmona, 1997:165).

4.2 Views and skyline protection

The external image a city presents to the world is the signature by which it is known. Like handwriting, a city's skyline conveys significant information about its nature. The pride with which the city's buildings assert themselves against the sky, the care with which buildings are set beside each other, and the response to the landform is evident in the views glimpsed when traveling toward a city that cares about its skyline and what that city becomes (Haskell, 1966:167). Civic concern regarding the skyline may not always have been uppermost but it was present. Today distant economic interests often determine the shapes of new additions to the skyline. Budgetary objectives almost exclusively dominate and civic concerns, if present at all, are added as afterthoughts. This change in attitude is not invisible – it becomes even more noticable as new buildings displace old. But this need not necessarily be inevitable, for as Hedman and Jaszewski (1984:105) note "...powerful tools are available to shape the height and form of individual buildings that, in aggregate, shape the city skyline".

Policies aimed at protecting views and valued skylines play an important role in broader strategic urban design, and are likely to be relevant to the image and

identity of the settlement, to the ease of "way finding", and to the visual quality of the townscape at the level of the individual site.

The London boroughs in particular show frequent use of such policies, drawing on the useful research carried out for the Greater London Development Plan. According to Punter and Carmona (1997:159) this study establishes a rigid height restriction zone for 10 important view corridors to St Paul's Cathedral and the Palace of Westminster, the former expressed in the City of London's Plan, and the latter in the Westminster City Plan with its British Parliamentary "triangle". So the City of London's plan protects eight strategic viewing corridors to St Paul's and the backdrops that frame these views. This is achieved by defining protection areas composed of three parts – the "viewing corridor". The "wider setting consultation area" and the "background consultation area" – with sketches of each contained in an appendix to the plan. To aid this process height limits are laid down and rigidly enforced for new development in these areas, including the redevelopment of existing buildings that currently intrude upon the protected views. In the City's plan other significant views and skylines are protected through a more general policy. Westminster's plan identifies four strategic views across the city, but gives special consideration to building materials in this context because it is believed that these can have a particular impact on long-distance views. This is illustrated in the study and proposals for views in Cambridge (Figure 19).

Furthermore Punter and Carmona hold that view policies can help to protect the quality of town and countryside relationships, the broader panoramic aspects of the skyline, and the town or the city image and character at large and that it is important to define and justify carefully which buildings and which vantage points are going to serve as the key targets of any view policy, and to protect not only the viewing point and the viewing corridor, but also the wider setting and the backdrop to the view (Figure 20).

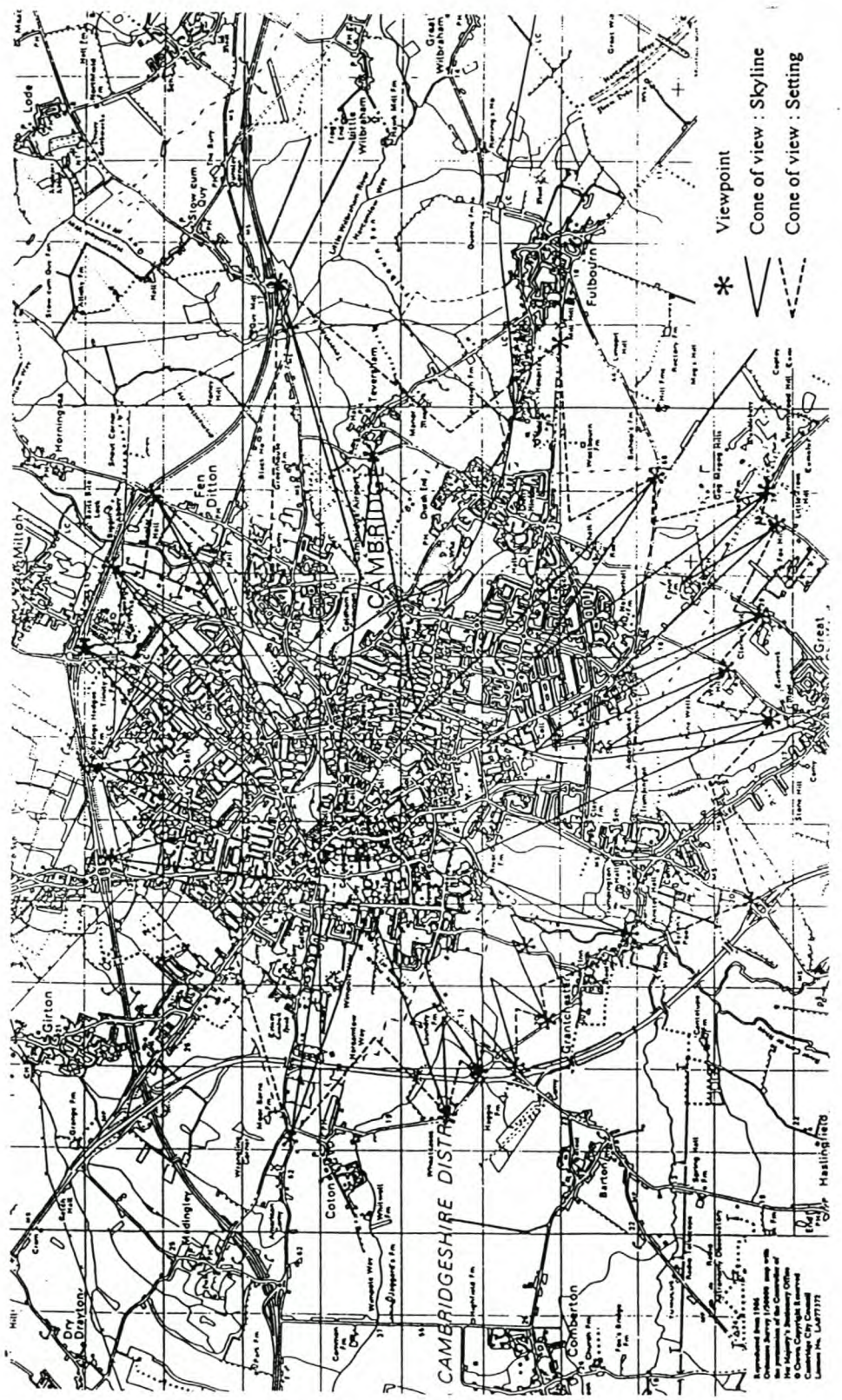


Figure 19: Views of Cambridge (Punter & Carmona, 1997:160)

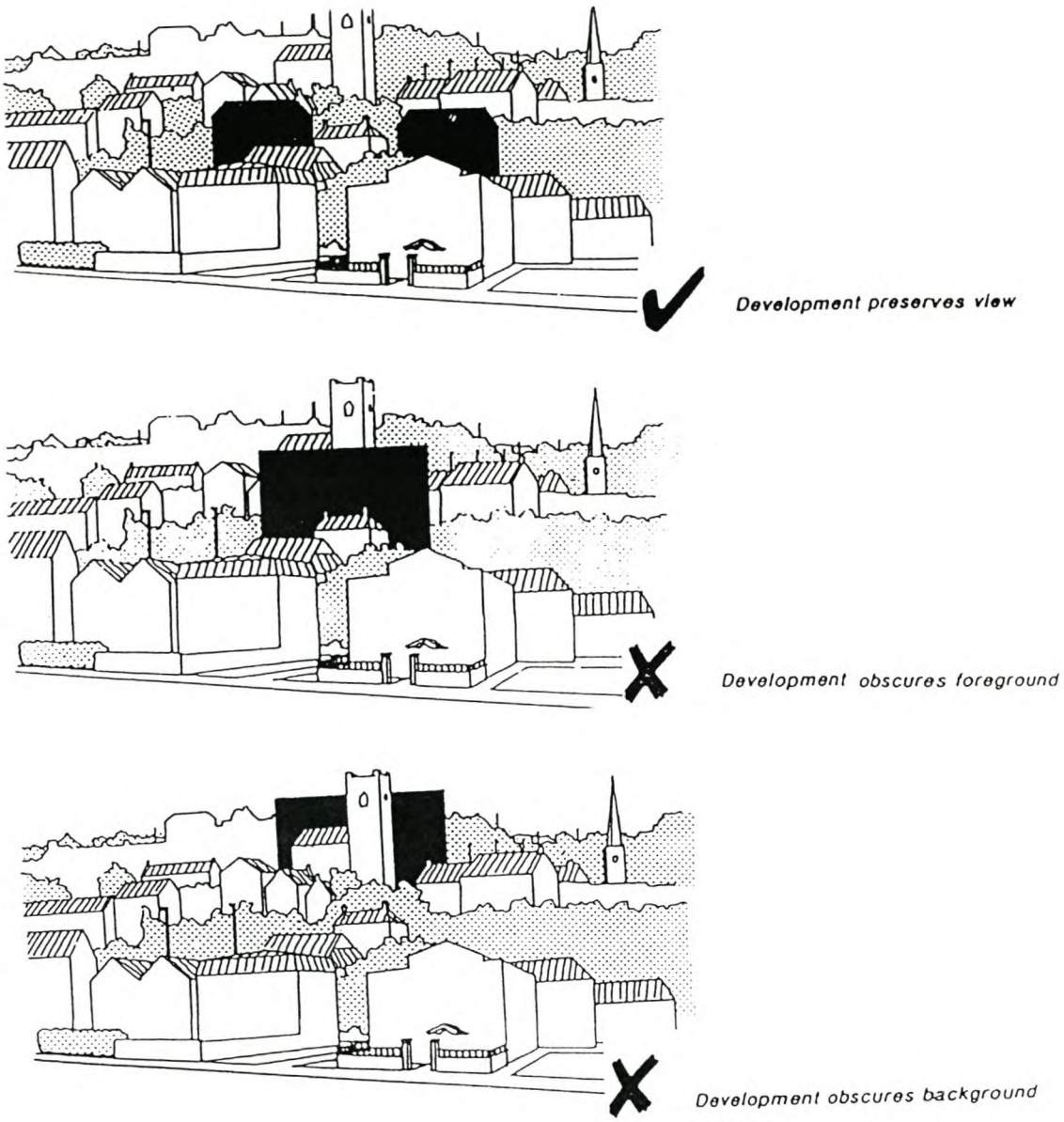


Figure 20: Preserving a view (Luck & White, 1994:25)

The view from Donkin reserve, in Port Elizabeth, is preserved by a height restriction applicable to a arc-shaped area stretching towards the sea. The centre of the CBD is located in the height restriction area, and therefore only moderately high buildings are permitted in the area with the highest property value. The buildings north of Russel Road outside the "arc" are taller (Figure 21).

Figure 21: Arc-shaped height restrictions, protecting the view from Donkin reserve (unknown source).

4.3 Controlling sunlight access

Whatever its climatic patterns, every city experiences those perfect days when it is a joy to be outside in the sun and air. A city's public parks, plazas, and playgrounds exist for those special days. These open spaces are a precious resource and according to Hedman and Jaszewski (1984:119) should be protected from building shadows during periods of active use. Sunlight to streets is also a valued urban amenity meriting conservation, although protection may be more varied in application. The need for and the restrictiveness of sunlight controls for streets will reflect local climatic conditions, the size of the city, the uses along the street, and the disposition of public open spaces. A city that endures extended hot weather might actively seek cool, well-shaded streets – in contrast to the aims of a city with cool, windy summers.

Good daylight within buildings is much appreciated by residents, workers and customers, whatever the building. Sunlight is also appreciated, especially as solar gain can reduce energy requirements. The design of the interior environment is important as well, especially the size and positions of windows,

the depth and shape of rooms and the colour of internal surfaces (Littlefair, 1991:1) In turn the depth of rooms affects the building bulk which is a design consideration.

Controls directed towards ensuring sunlight access to streets and open space are a form of height control that can significantly affect urban form. Sunlight angles designed to ensure sunlight to the open space in an area where a tall building might cast shadows can affect the height of buildings within several blocks, depending on what hours sunlight is desired. A large "bowl of space" may have to be carved from potential development around a park or playground to insure adequate sunlight. Existing large buildings may modify the limits imposed, and a project that does not add to the existing shadow pattern does no harm. An absolute prohibition against casting shade upon a park sounds ideal, but in practice can appear quite foolish considering that even the smallest bungalow casts a disproportionately long shadow in the early morning and late evening hours. For this reason most controls assume a limited amount of shadowing. If it is a formal plaza or square where the need for good spatial definition is crucial, the requirements for solar access may have to be altered accordingly. Hedman and Jaszewski's (1984:120) comments in this regard are apposite in that they point out the determination of precisely where to draw the line, where to "reasonably" stop slicing off a bit of sunlight here and there before nothing is left can be difficult with or without political pressure.

The height limits for assuring sunlight to open space may be incorporated into the standard height district format, stated as an irregular geometric cone sloping outward from the open space, or translated into level but irregular shaped steps called a solar fan and mapped as an overlay district. The extent of shadows cast by buildings can be prepared manually using a sun calculator, drawn by a computer for as many time intervals and days as desired, or studied photographically. Plotted shadow patterns have the advantage in that they distinguish new from existing shadows and determine the precise shadow effect

on popular gathering points. A thorough survey of how the space is used at different times of the day and year and under differing climatic conditions is invaluable for assessing impact (Hedman &Jaszewski, 1984:120).

Photo 7: A New York streetscape were the sunlight barely reaches through the man made canyon creating a very alienating environment (Photo: Don Crease).

While it is sensible to ensure continued sunlight access to squares and city parks, it does not follow that all streets should be treated similarly. A diversity of environmental and spatial experiences is an important part of the richness that cities have to offer. Controls directed at assuring sunlight to the street should integrate considerations of human needs with the appropriateness of the uses along the street and an eye for pattern and effect. Low-scaled sunny areas and

high-rise districts are proper compositional elements to be used in the design of cities. But according to Hedman and Jaszewski (1984:122) within downtown areas neither should dominate completely and as a general policy, there should be no more than a five minute walk from the center of any dense high-rise building cluster to a pleasant sunny open space or an area of relatively small-scaled sunny streets. The best man-made high-rise canyons are dramatic and exciting and never so extended in area that they become "prisons".

San Francisco has proposed new height districts that bound the dense working population of the financial district by relatively small-scaled areas and open spaces. Hedman and Jaszewski (1984:122) note that the reduced heights proposed in the retail core are intended to protect the special environmental character that has helped make the area one of the most vital retail centers in the nation.

Each method for protecting sunlight access to streets makes a unique imprint on the form and character of the street and cityscape. Individual approaches may also have radically different impacts on the development potential of the abutting land. The basic tools for controlling sunlight access as cited by Hedman and Jaszewski (1981:122-125) can be creatively mixed and modified to achieve not only their stated objective but also a "surprisingly rich palette of urban forms".

- Height limits

The standard building height is the most basic mechanism for assuring sunny streets. Either the height can be derived from the sun angle desired or the sun angle can be the by-product of a desired street wall height. This method is not well suited for differentiating between north-south and east-west streets.

- Setbacks

Requiring a setback of a certain number of meters at a specified height, when coupled with a height limit, establishes a sun angle the same as a height limit alone. This arrangement differs in two ways: the development potential can be increased while keeping the same street wall height and the setback introduces a layered effect that can strengthen and inject formality into the streetscape. The tiering of a series of setbacks, each progressively deeper, could be used to create a special streetscape

Photo 8: A New York streetscape that shows the effect building setbacks have on the sunlight that reaches the street (Photo: Don Crease).

- Conditional height

Above a set base height, obtaining additional building height is made conditional on meeting specified criteria for achieving a wide variety of objectives in addition to sunlight control. Greater height could be permitted if for example, it did not add to the shadows on public sidewalks between 11 a.m. and 3 p.m. Additional height also could be tied to parking requirements, building material, colour, achievement of a particular image, or design review. The great flexibility possible through the application of performance criteria makes this an attractive design tool.

- Sun angles

Sun angles are designed to assure sunlight to sidewalk areas or other public spaces between selected hours. The angle usually starts at the opposite curb and defines the street wall height and setbacks up to the maximum height. The angles will vary with the street orientation and width. They may be less restrictive on north-south streets than east-west streets as the angle required to obtain additional minutes of sunlight quickly is limited. Pursued to excess without thought to the form consequences, sun-angle requirements could yield an unusual sawtooth city profile.

- View angles

View angles are primarily intended to maintain a specific visual scale irrespective of the intensity of development behind the façade and require that height exceeding the mandated façade height be hidden from the pedestrian. View angles work much the same as sun angles but usually are more restrictive above the selected façade height. They are very useful for new construction within a historic district where retention of the sense of scale of the district is important.

- Tower spacing

Where high buildings are wanted, the spacing between towers determines how much sunlight can reach the street. Substantial shadowing occurs from the towers themselves, but controls assure that at least intermittent shafts of sunlight reach public areas. Owners have a vested interest in keeping the modern high rise reasonably spaced because of the adverse effect on rent when views are severely constrained. Such controls provide reputable developers and owners with a measure of protection.

Most plans contain only a passing mention of daylight and sunlight concerns, but they can be used in conjunction with plot ratios or space around dwellings criteria to control building density. Nowadays they can be used in conjunction with massing criteria to ensure that adequate light reaches both the building and the spaces around it. Historically such controls have tended to consider only the former, and in high-rise development in combination with plot ratios this produced not only poor-quality townscapes but also deeply shaded spaces with an inhospitable microclimate.

The simpler criteria recommended today take a more integrated view of the role of daylight/sunlight in design, emphasizing what should be achievable but recognize the importance of flexibility in application, as well as the need to recognize that the context may dictate the application of quite different standards. Two rules of thumb suggested by recent research are firstly the observance of an unobstructed daylight angle of 25° (drawn 2 m above the ground plane of the building), and secondly the orientation of at least one main window wall facing 90° of due south for sunlighting (drawn from the same point) (Littlefair, 1992:13). A third rule suggests that to make use of solar heating the receptive façade of the building should face within 45° of south, and preferably within 30° (Barton *et al.*, 1995,160) (the above requirements are applicable to the northern hemisphere). As a fourth point, glare or reflected heat loads should also be taken into account.

In the southern hemisphere, buildings must face north instead of south to gain maximum benefit from the sunlight.

Overshadowing also needs to be identified as an issue of primary concern for planning authorities, and policy should aim to prevent the blighting of adjacent sites. Although none of these "rules" addresses the microclimate of open spaces, they will nevertheless help to ensure good sunlight penetration and therefore aid the creation of attractive open spaces and usable back gardens. A benign microclimate is vital not only to make open spaces attractive, but also to allow outdoor activities, to encourage plant growth, to dry the ground and to aid the drying of clothes all year round (Littlefair, 1992:12). Such mundane matters are critical to the comfort and utility of amenity space. The primary concern in Britain for example, is to mitigate the cold, wind and wet of the relatively long winter. Along with maximizing solar access, controlling adverse wind effects, such as increased velocities around buildings is vital to conserve energy and to make the public realm more inviting (Punter & Carmona, 1997:167).

4.4 Bulk controls

A building that is many times the width of neighboring buildings may present difficult architectural problems. As the height of the wide building increases above that of its neighbours, the nature of the design problem quickly changes. Articulating the façade is no longer enough to ameliorate the clash in scale. Substantial changes in the mass of the building itself are required to reduce the overwhelming bulk and achieve an agreeable contextual fit. The elevation at which bulk begins to be an issue is relative to the prevalent height of surrounding development. Above that control point, the perception of bulk depends on the scale of surrounding buildings and within limits, the configuration of the upper part of the tower (Hedman & Jaszewski, 1984:125).

The massive U- and E-plan office towers that were popular in the 1920s managed to defuse problems of bulk through the use of small-scaled features and embellishments. Chimneys disguised as temples, corner pavilions, chateau roof forms, gothic spires, and romantic clock towers helped link large bulky buildings to their smaller neigbours. Modern architecture's current strictures largely exclude such devices. A slender top can help offset the massiveness of the lower portions of a building by imparting a sense of lightness and gracefulness to the whole. Effective devices that help diminish the impression of oversized bulk include articulation of the building mass to create the impression of an aggregation of smaller forms, and changes in exterior cladding to disguise the true width. Bulk controls are a means for keeping the design problems within the range of available design solutions (Hedman & Jaszewski, 1984:126).

The developers of Bergzight Plaza in Stellenbosch made an attempt to disguise the bulk of the building by the articulation of the façade into smaller parts. The building however still dominates the streetscape (Photo 9).

Photo 9: Bergzight, Stellenbosch

An example of a building that dominates the streetscape because of its overwhelming bulk and lack of three dimensional modeling on the facade is the Faculty of Arts building on the campus of the University of Stellenbosch (Photo 10).

Photo 10: Faculty of Arts building (Stellenbosch) dominates the streetscape because of its overwhelming bulk.

These control measures express the "bulk" components of physical density, i.e. expression of the physical form and volume of buildings. These include the following:

- **Floor Area Ratio** (FAR), which is the ratio of built floor area (on all floors) to the area of the site; FAR is usually expressed as a % or a decimal fraction.
- **Coverage**: the ratio of the area covered by the buildings (i.e. the area of the ground floor "footprint") to the area of the site; Coverage is also expressed as a % or a decimal fraction.

- **Angles** such as light angles and shadow angles are additional measures that may be used to define a building envelope in relation to its site, street, or adjoining structures.
- **Height and Setbacks**: the combination of these measures determines the site-specific maximum permitted massing or building envelope.

In zoning and building regulations, these measures are frequently used in combination with other density measures to meet the desired permitted maximum intensity of land use (Alexander, Reed & Murphy,1988:7).

4.4.1 San Francisco Bulk controls

The bulk controls San Francisco adopted in 1971 established four maximum bulk envelopes that took effect at different elevations. The heights above which the controls took effect were derived from the typical scale of the different parts of the city to which they were applied. In the downtown area, the maximum length (or width) of 56.7 meters coupled with a maximum plan diagonal of 66.7 meters was applied. These maximums translated into a basic rectangle of 56.7-by-35.3 meters. The maximum floor size possible within these controlling dimensions was 8 936.7 square meters. Building after building pressed against the dimensional limits, indicating that had they not existed even more massive buildings would have been built. Unfortunately, the buildings that were built were still regrettably over scaled forms in the context of the fine background scale of San Francisco. It was not that 56.7 meters was too large at the bottom or even the middle of the building; it was too large when that measure extended from top to bottom of a high rise.

According to Hedman and Jaszewski (1984:129) the box top towers lined up on the skyline with all the grace of a refrigerator showroom. The controls limited the maximum dimensions of the "refrigerators" but did nothing to affect the form of the tower. It should be noted that the bulk controls were not causing the box top

shape. Similar buildings were springing up in cities across the USA, and there was a mechanism for excepting the dimensional requirements in return for better design. As Hedman and Jaszewski point out that to obtain the form changes needed to make buildings work better with other buildings and within the skyline, it was necessary to forcibly wean architects and developers from the deadly box top formula. Controls were needed that would lead architects to design buildings with clearly defined bases, middle-sections, and tops where the adjustments for achieving a good contextual relationship could fit comfortably into the design.

The method used sought to combine a desirable degree of flexibility with needed restraint and the least specific design bias. The key was to set maximum average floor area instead of a rigid envelope for the upper portions of the building. Within the midtower and top, some floors could be increased in size if others were correspondingly decreased. Dimensional restraints still were necessary because the maximum average floor area by itself could not prevent the wide thin slabs that were often used in hotels or on odd narrow sites. The maximum façade width was deliberately made larger than required to contain the maximum average floor area and to ensure that the architect was not trapped between form restraints and the developer's desires. At the maximum possible floor size, approximately the top 25 percent of the total building height would be limited in area to 60 percent of the average floor area of the midtower zone, ensuring that the most visible part of the building would be sympathetic to the scale of smaller downtown buildings. The required reduction of the top average floor area is not limited to the maximum floor sizes. As the average floor size for the midtower zone decreases, a reduction is still required, reducing in amount with the floor size. The percentage of total building height forming the top zone also drops off rapidly below 66.7 meters in height. The bulk controls are tied to the height of the building, not to the height of the district (Figure 22) (Hedman & Jaszewski, 1984:130).

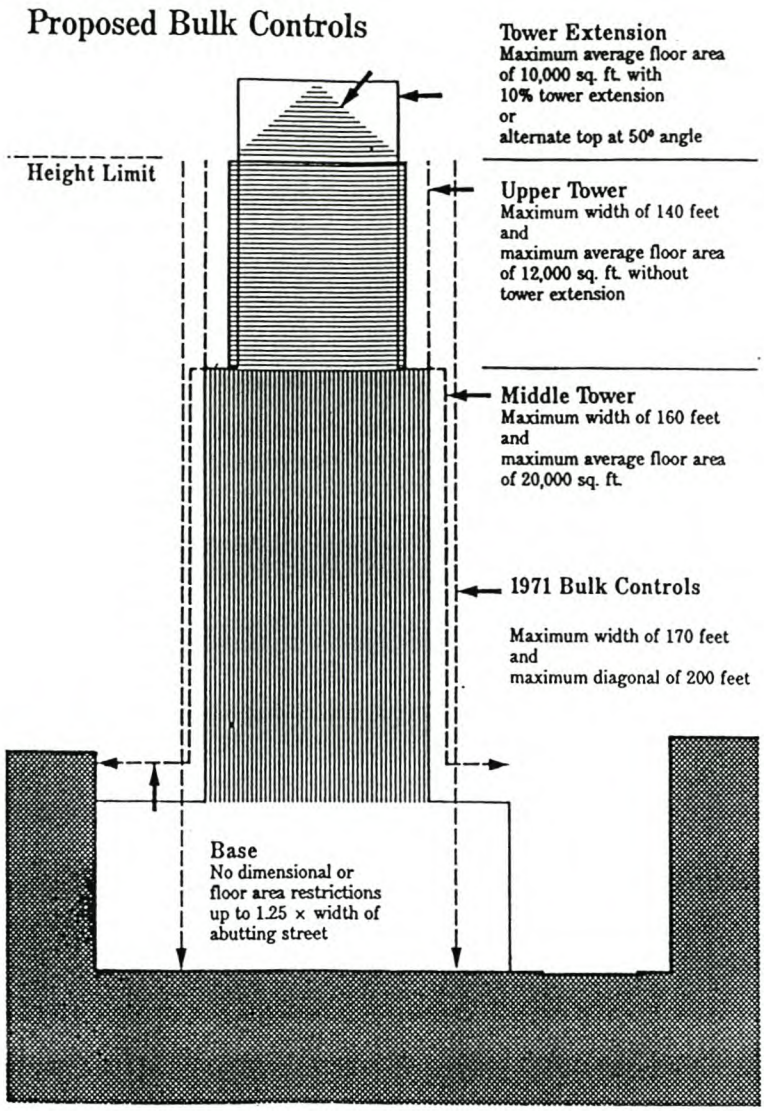


Figure 22: Comparison of existing and proposed bulk controls (Hedman & Jaszewski, 1984:132).

Expressing the floor sizes in terms of averages gives the designer considerable latitude as to how and where the transition from midtower to top occurs. Opportunity for the further sculpturing of the building top is provided by flexibility in massing mechanical equipment at the building top. Mechanical space must be an integral part of the architecture, not a little box perched on top of the building. No floor area or dimensional restraints are proposed for the base zone of the building. The one difference from the 1971 controls is that the base height is predicated on the width of the abutting street and not a height set for a zoning

district. Random setbacks from the property line are discouraged, as are plazas and miscellaneous sidewalk widenings that were previously credited with floor area bonuses under the old zoning controls. Plazas are still possible as a means of meeting required open space. The placement of plazas, however, is carefully controlled to avoid disturbing the traditional street pattern in return for vague ill-defined spaces (Hedman & Jaszewski, 1984:132).

The maintenance of continuous shopfronts at sidewalk level is encouraged to retain the traditional shopping patterns. Office and parking garages are encouraged to devote the groundfloor space at street level to shopping.

Bulk controls facilitate the improvement of wind conditions at the street level. Tall buildings intercept wind at upper levels and direct some of it downward to the street. The wider the building and the smoother the surface, the stronger building-generated wind turbulence can be at the base. The introduction of building setbacks can reduce this effect by diverting wind flow before it reaches the street (Figure 23). To the degree that bulk controls result in articulated and stepped building forms, they work to decrease wind problems. But bulk controls cannot by themselves be relied upon to solve such problems; wind standards and studies also must be directed towards their solution (Hedman & Jaszewski, 1984:133).

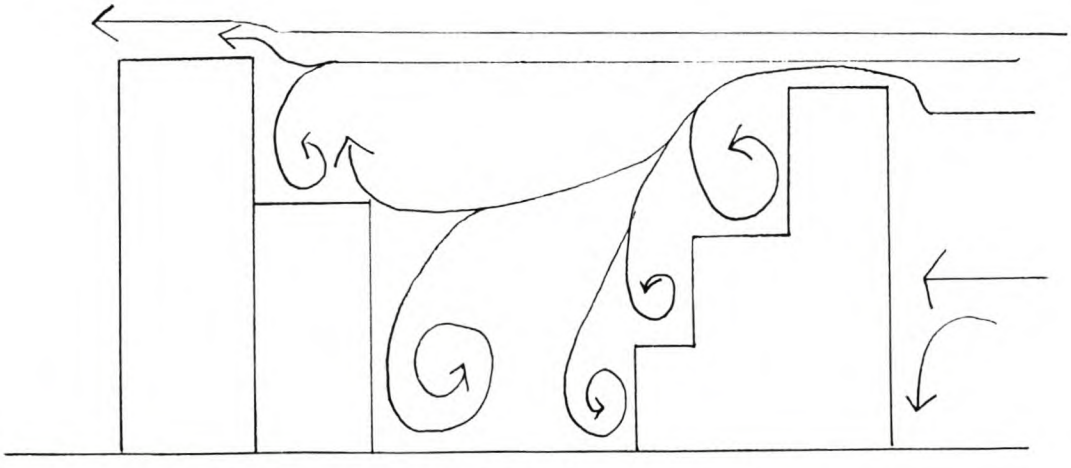


Figure 23: Building form that diverts wind flow (Author)

Figure 24: People battling against the wind in Cape Town's CBD (Cape Argus).

San Francisco's proposed new bulk controls illustrate one approach designed to meet the problems of one city. Each community that seeks to address this issue should do so from the perspective of what is needed locally, not what is being done elsewhere. The controls for San Francisco were tailored for that city and would be appropriate only for cities with similar problems. There are many possible variations. More zones could be added with decreasing average floor areas, increased height above a specified point could be made contingent on increasing slenderness, roof forms could be specified, or floor size limits could be triggered by the elevation above sea level to create a distinctive horizontal break in the Skyline. The combination of bulk and height controls can be used to direct city form and to contribute to a distinctive style and character. "Cities need not passively accept the dictates of a bland homogenized development" (Hedman & Jaszewski, 1984: 135).

4.5 Density control

The most commonly used density controls are plot ratios, habitable rooms or persons per hectare, the former being largely used for commercial cores and densely built-up areas, the latter for new residential development. Some authorities use both types of control, and a few use them simultaneously to control high-density housing. Plot ratios are calculated as the gross floor area divided by the net site area. However, they have been widely discredited as design control instruments.

A key problem has been that, historically, they have prescribed the maximum amount of floor space, which has then become the minimum negotiating point for applicants, making the controls self-defeating. Although easy to use, perceived to be "fair" to landowners and useful in leveling out land values, they have allowed all manner of building heights and volumes to pierce the skyline, have failed to ensure respect for building lines or townscape, and have often helped to create uninhabitable spaces and hostile microclimates at ground level. Punter and Carmona (1997:161) cite a recent example of these criticisms contained in the inquiry into the City of London plan, where the inspector himself suggested that plot ratios should be abandoned in favour of assessing buildings on whether they "visually enhance the City, and... avoid harm to the townscape".

The most useful and well thought out policies specify the circumstances in which plot ratios might be increased or reduced (e.g. because of townscape considerations, skyline or view considerations, proximity to transport nodes or open space). Generally, where plot ratios remain in plans they do so largely as guidance used along with other density standards such as habitable rooms per acre or hectare, controls on building height and other less quantitative controls such as scale, massing, form and so on. But it is useful to consider a fine-grained approach to setting plot ratios, carefully matching them to different built forms and townscapes and levels of accessibility. Plot ratios need to be flexibly

interpreted to allow development to accord with its context (Punter, Carmona & Platts, 1994:12).

However, now that increasing densities are seen as fundamental to sustainable settlements it is useful to conceive of appropriate densities of development that will support public transport, energy conservation and economical servicing while protecting amenities (Punter & Carmona, 1997:163) and (Cape Metropolitan Council, 2000:8).

Difficulties are created when densities are increased in already long established neighbourhoods. Simply subdividing erven in a standardized way does not give satisfactory results. Each case must be studied on its own merits. This process is happening in Stellenbosch and the town council has met with difficulties when people want to subdivide erven but still want the same character as before in a neighbourhood, even with the increased density (Plotter, 2000:20). Increasing density is seen as better use of land, but it must be realized that with increasing densities the grain and character of an area will definitely change and a need for parking and different amenities will also be created. Careful consideration must be given to different approaches to densification.

A commonly held view is that the density in existing schemes comprising detached dwelling, could be substantially intensified with the addition of new housing. Again it must be noted that the occupancy rate of dwellings in these existing housing schemes is typically high and the value of the existing outdoor space must not be underestimated. On the one hand, the addition of new floor area might simply be taken up by the existing population, in which case no increase in the population density will have been achieved. If, on the other hand, the additional floor area is taken up by new households, the outdoor space will have been greatly depleted as an asset off-setting the high occupancy rate within dwellings (Poplak, 1988:4).

Residential density is highlighted as a legitimate design control consideration, but needs to be related to the character and quality of the local environment, and should not be the subject of rigid formulae. Like other density policies, those for residential development need to be much more than a blanket entitlement, and to be carefully related to the locality. Control of residential density is handled in a wide variety of ways. Most commonly a "habitable rooms per hectare" measure is used to place an upper limit on residential density. However, without some relation to context, such broad-bush density controls can run into the same problems as plot ratios, with uniform densities applied across the range of very different contexts. Another measure of density used widely in less dense environments is the number of dwelling units per hectare. This is obviously more open to interpretation, as the size of a single unit can vary enormously, and should be linked with guidance on the number of storeys (Punter & Carmona, 1997:164).

Specific densities often suggest images of specific types of environments. However, density used in this way may be more misleading than informative. For example, a high rise development in Hillbrow (Johannesburg) and the single storey development at the Meadowlands Hostel (Johannesburg) have very similar densities (Figure 25) (Poplak, 1988:3).

Figure 25: Density measures are not necessarily indicative of the housing environment or urban form (Poplak, 1988:3)

The fear of what Hooper terms "town cramming" is part of the traditional confusion between overcrowding, space standards and density. This is illustrated by the following statement by Professor Alan Hooper (1996) : "...an unreflective response which matches smaller households to smaller dwellings at high densities in concentrated urban areas is not likely to result in a sustainable form of development". The first part of this point is well made in that it is dangerous to assume that smaller households will opt for smaller units. However to equate this to high-density urban development is to make a mistake that planners have been making for many years. There is no reason why large apartments or even houses cannot exist in urban areas at high densities as witnessed in Manhattan in New York or in Central Paris (Rudlin & Falk, 1999:141).

A useful way of reconciling these confusions has been suggested by Brenda Vale and Ernie Scoffam (1996) who have suggested a distinction between the density and the intensity of development. The former is an objective measure of the number of houses, people or rooms to the hectare while the latter is a subjective measure of how crowded a place feels. They point out that the relationship between density and intensity is far from clear. Many intense environments such as high-rise council estates are actually built to quite low densities whereas many high-density environments, particularly in historic areas do not feel overcrowded. They conclude by suggesting that prescriptions about density are irrelevant since the same density can conceal a variety of built forms which both psychologically and physically may be either compact or loose, urban or suburban, intense or diffuse.

In considering densities, it is important to distinguish between three different types of density which represent different phenomena and appear in different contexts though, they are intimately linked. They are:

- Perceived density
- Physical density
- Measured density

Density is a perceived experience, made up of a physical system which is transformed into a perceived system and, when matched against personal and cultural norms, generates an "affective density" that communicates evaluative judgments like a sense of isolation, a feeling of comfort, or a perception of crowding (Alexander, Reed & Murphy, 1988:3).

Four major elements or conditions inform the range in density levels at any given locality:

- Permissible development rights and building regulations: bulk, coverage, height, setbacks and parking requirements, restrictive title conditions.
- Market demand.
- The objectives of local structure plans intent on accommodating high or moderate to low densities.
- Contextual factors, such as the availability of vacant land, (re)developable land or the suitability of existing building stock to be adapted to higher-density use, and environmental qualities (Cape Metropolitan Council, 2000:55).

Problems arise when densities are increased without rethinking the design of housing and the layout of urban areas. If the density of suburban designs is increased lower space standards may result along with congestion and a lack of open space. However this is not inevitable. Since the 1960's architects have known that the optimum form to maximize density without creating the perception of overcrowding is the three or four storey terrace around squares and open spaces. This is the traditional way in which the Georgians built within cities and there is no reason why we should not rediscover these forms to ensure that quality space standards and urban development are both achieved (Rudlin & Falk, 1999:142). The Bloomsbury Squares in London are excellent examples of this approach (Figure 4).

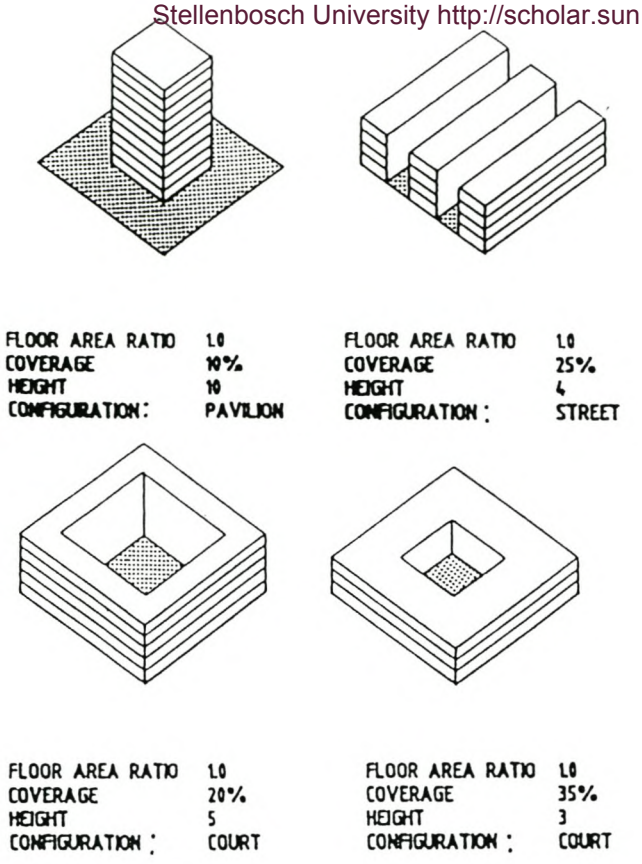


Figure 26: For a specific FAR, it is possible to achieve a wide range of housing (Poplak, 1988:10).

Martin & March (1972) have shown that in terms of site utilization the court is the most efficient, followed by the street and finally the pavilion forms and layouts.

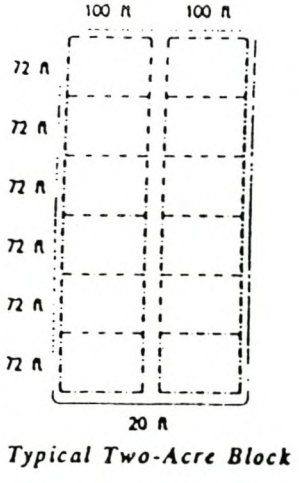


Figure 27: Different densities: rural – urban (Duany, Plater-Zyberg & Company, 1999:J31).

RURAL

General Type	edgeyard	edgeyard	edgeyard	edgeyard	edgeyard	edgeyard
Specific Type	villa	villa	villa / house	villa / house	house / cottage	house
Net Density	1 unit / 2 ac	1 unit / ac	2 units / ac	4 units / ac	6 units / ac	8 units / ac
Lot Size	432 ft x 220 ft	216 ft x 220 ft	108 ft x 220 ft	108 ft x 110 ft	72 ft x 100 ft	54 ft x 100 ft

URBAN

General Type	sideyard	rearyard	rearyard	rearyard	edgeyard	edgeyard
Specific Type	duplex	rowhouse	rowhouse	rowhouse	apartment block	courtyard apartment block
Net Density	8 units / ac	12 units / ac	18 units / ac	24 units / ac	36 units / ac	36 units / ac
Lot Size	54 ft x 100 ft	36 ft x 100 ft	24 ft x 100 ft	18 ft x 100 ft	72 ft x 100 ft	72 ft & 144 ft x 100 ft

Figure 27: Different densities: rural – urban (Duany, Plater-Zyberg & Company, 1999:J31) (continues).

According to the Cape Metropolitan Spatial Development Framework (2000) the ideal is to have higher densities in new residential areas. Photos 11, 12, 13 and 14 are examples of different new residential developments with high densities in the Cape Metropolitan area.

Photos 11 and 12 show the development of Sunningdale in the Parklands area located in the City of Blaawberg municipal area. This area was developed as a Planned Unit Development with housing densities ranging between 20 to 40 units/hectare. These densities can be achieved because of the communal, functional open area system that incorporates storm water drainage and electric power lines. The power lines however, are completely out of scale with the single-storey residential development and dominate the landscape.

Photo 13 is of the Sonstraal Heights development in Durbanville. This area was developed as separate sites but only by two developers, which in part explains the monotony of design. The density of this area is 25 units/hectare but it seems denser because of the lack of communal open areas. Each site has its own requirements and coverage of 50% is allowed for the entire development.

Photo 14 is of the low cost housing area of Du Noon in the City of Blaawberg municipal area. This area was developed according to the regulations laid down in Article 8 of the zoning scheme regulations concerning the Informal Residential Zone. The regulations differentiate between shelters and dwelling houses. The regulations specify no floor factor or coverage, the only restriction being a height of 3 storeys for shelters and no floor factor with coverage of 80% and a height restriction of 3 storeys for a dwelling house.

Photo 11 and 12: Sunningdale Planned Unit Development, showing obtrusive power lines and drainage in the open spaces.

Photo 13: Sonstraal Heights showing monotonous design (25 units per hectare)

Photo 14: Du Noon low-cost housing area

Montgomery (1998:103) states that there is no simple arithmetic answer to optimum city density, as this varies depending on the characteristics of place and the mix of activities. Densities can be too low where they fail to generate vitality, and too high where they produce standardized buildings, regimented layouts and large development footprints." Density in itself will not necessarily produce urbanity: density is a necessary rather than a sufficient condition for urbanity".

4.6 Street building lines

Rudlin and Falk (1999:183) maintain that the first rule of the urban etiquette is that buildings should follow a building line. This is the line created by the main frontage of the building, ignoring projections and setbacks. There has been a tendency in modern urban design to introduce variety in the position of buildings. However in most urban areas the building lines are continuous even if not always straight. The distance between the building lines defines the width of the street far more than the carriageway or pavements. It therefore determines the scale, proportion and character of the street, characteristics which are lost if the building line is broken or ignored. On most urban streets the building line is already well defined by existing buildings and planning authorities are usually careful to ensure that new development does not project forward of this line so as to interrupt views along the street. However the tendency with many modern development forms is to set buildings back from the building line to create space for car parking. This can be seen in housing developments where planners or developers insist on a driveway to park the car off the street. It is also the case with retail developers who like car parking to be visible to passing motorists. While it is possible for buildings to be set back from the building line, if this is done too often the integrity of the street space can be undermined.

Building lines if set back, should have meaning (i.e. create a proper forecourt and not just make an arbitrary arrangement that so often occurs) (Luck & White, 1994:26). Different attitudes to the site dimensions as they relate to the house

size can produce considerably different urban form conditions without changing the density. This is perhaps best illustrated in relation to the front yard or setback dimension. A change of setback with the building dimension and the lot size remaining the same can produce a considerably different urban environment with no impact on the density measure (Alexander, Reed & Murphy, 1988:48).

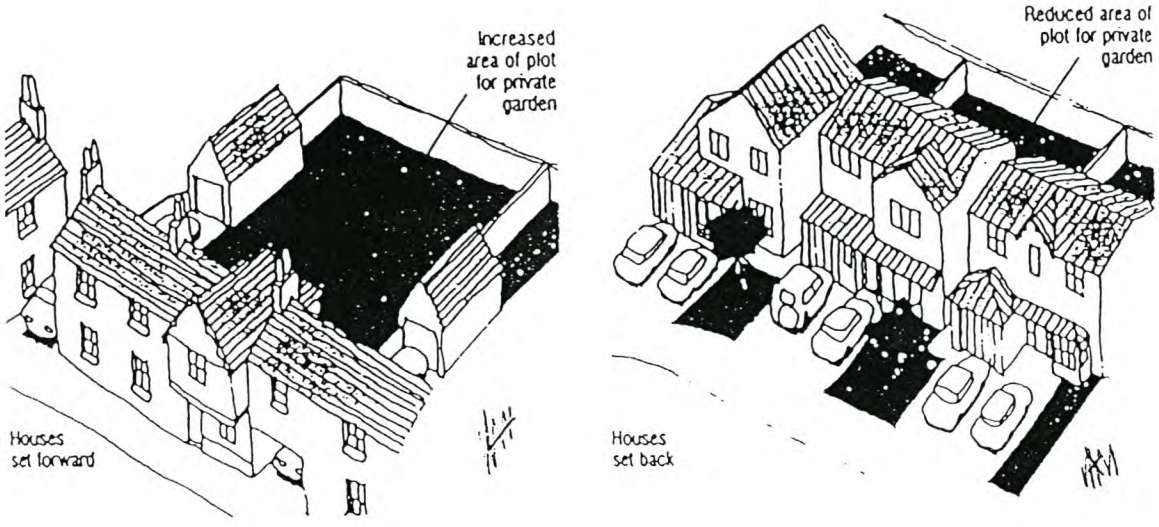


Figure 28: The different kinds of urban form that can be achieved without a change in density (Gould,1998:29).

The extension of this thinking can have an even greater impact on urban form. In a study carried out in England, the following sequence of logic is outlined – less set back requirements can result in smaller lots which means more houses on site (and hence a higher density) which, in turn, produces a greater return to the builder (Essex County Council, 1973). The use of this option then gives the planning authority greater leverage on the developer to demand higher standards of finishes and detailing in the urban realm. Clearly this kind of thinking produces a significant relationship between setback, density, and urban form (Alexander, Reed & Murphy, 1988:49).

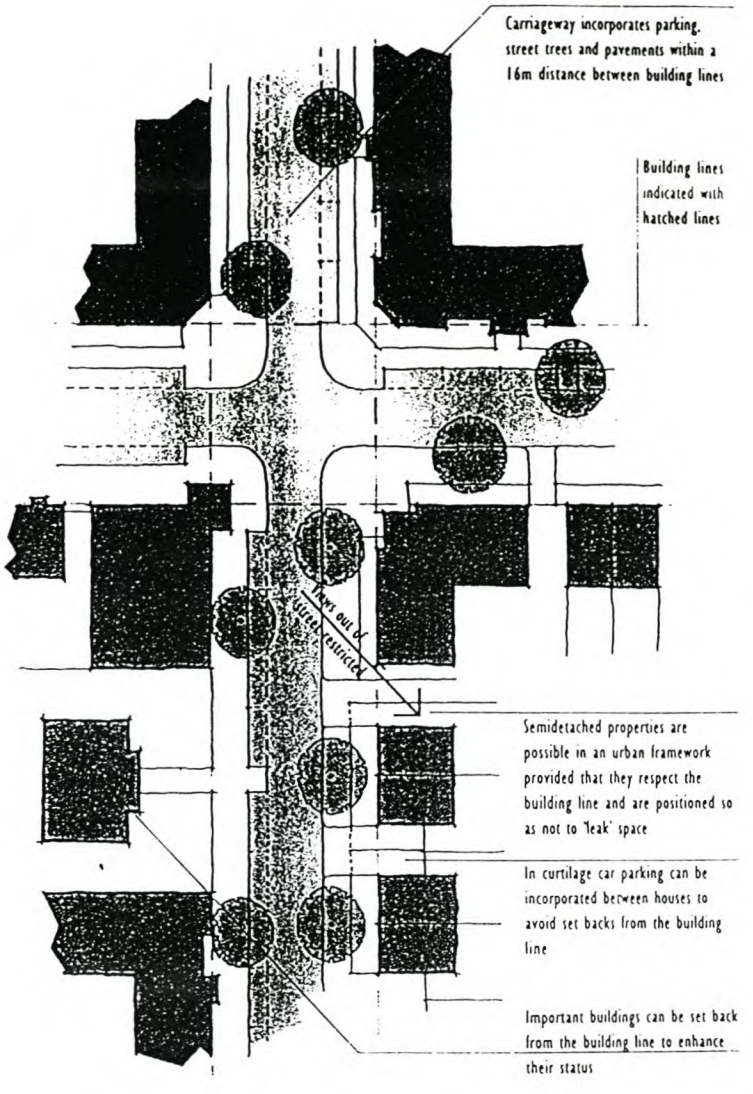


Figure 29: The use of building lines according to the New Urbanism philosophy (Rudlin & Falk, 1999:183).

4.7 Zoning

The general purpose of a zoning scheme according to the Western Cape Planning and Development Act, 1999 (No. 7 of 1999) (Chapter II, 9) is "to promote and implement the principles contained in Schedule IV of that same document and the provisions of an integrated development framework or sectoral

plan applicable to the area of the zoning scheme and to determine use rights with a view to managing growth and urban and rural land development".

Zoning ordinances can generally be said to specify the uses to which property may be legally put and the intensity of development allowed, stated in terms of floor area. A zoning plan may often specify off-street parking requirements or off-street truck loading facilities as a ratio of floor area. Zoning designations have become more and more elaborate, with numerous sub-classifications to encompass complex variations and combinations.

The legal profession has been concerned that the *ad hoc* treatment of zoning problems, as in zoning departure requests, may be undermining zoning because of inept administration and inequity in practice. This inequity usually occurs because of political and economic pressure on the local council. Spreiregen (1965:177) is of the opinion that at the heart of the problem is the lack of a clear public objective – a plan – which would guide judgment in various requests and he rightly contends that the planning profession must recognize that zoning is no substitute for design and that too often it freezes the design of a city. Furthermore he maintains that zoning is, by its nature, negative. It can prevent property owners from burdening the public with an ill-suited development. But it cannot plan school locations, traffic movement, or parklands – nor can it create beauty, order, or amenity. Zoning is neither planning nor design. Ideally it is a set of specifications that accompany a plan and as such should be regarded in the same light as a set of architect's specifications.

Spreiregen (1965:177) believes that, even as a second-best control, zoning serves a purpose. One can readily imagine the chaos that would result if all zoning were abolished. Nevertheless, zoning without a full-blown plan is as silly as a set of building specifications without working drawings or a list of culinary ingredients without a recipe. Zoning falls into proper place as the legal enforcement of an overall urban concept. For the time being we must recognize

the powerful role of zoning as a control. As things now stand, it is the single most powerful factor.

Even though Spreiregen (1965:177) made this statement a long time ago, it is still true in South Africa. The shortcomings in the system have been recognized. Still, certain erven have certain rights according to the town planning schemes that are in place, and because this is the legal document that municipalities use to control the urban form, people can insist on the zoning rights they have on their property even though these do not accord with the current situation.

In an interview held with the land-use planner at the Durbanville municipality (Mr. Myburgh, 14/09/2001), he said that in the past zoning schemes were created before structure plans were in place. This led to the problem that the zoning scheme did not correspond with the structure plan of an area. For example areas that were originally zoned for high density residential development, may according to the structure plan actually be used for low density residential development. This problem has since been resolved by first developing a structure plan and according to that, a zoning scheme.

Zoning as a tool to control urban development has become more flexible over the years. According to the Western Cape Planning and Development Act, (No.7 of 1999, Chapter II, 9) zoning scheme regulations and zoning scheme by-laws may provide for different methods of zoning or managing land development and use, including the indication of zones according to land use or intensity of utilisation, the use of over-lay zones, performance zones or any other method of managing development. Some of the other aspects it provides for include:

- alternative development possibilities for existing use rights, including the transfer of development rights and the allocation of development bonuses, as prescribed;

- the control over aesthetic aspects and design guidelines, including building design, advertising signs, boundary walls and measures to promote accessibility for persons with disabilities;

- protective measures in respect of areas of the natural environment and environmentally sensitive areas;

- the encouragement of economic activity, especially in the informal sector, and mixed land uses;

- the promotion of urban renewal or reconstruction, integration and upgrading by means of overlay zones or any other method.

Zoning is a very complex and extensive control mechanism, which can be used to direct the urban form. In South Africa progress has been made towards making this control mechanism more flexible to allow for innovation and the creation of a sustainable environment.

According to Sorensen (2001:257) several Japanese and Western commentators have pointed out the positive consequences of the high degrees of mixed use in Japanese cities. The economic and cultural vitality of Japanese cities and particularly the safety and continuing liveliness of central city areas, for example have been favourably contrasted with American cities.

He continues by pointing out that Japanese urban areas have also avoided the high degree of residential segregation that is prevalent in the USA, with most residential areas having residents with a wide range of incomes. On the other hand with the spectacular inflation of land prices in the late 1980's, others have noted that the openness of the zoning system encouraged the spread of price inflation from commercial areas to residential areas. It was argued that the price caused by the speculative boom of office buildings was able to spread to

residential areas because developers could realistically expect that residential sites could be redeveloped for office use. This illustrates the fact that a zoning scheme must be flexible but still be able to regulate the value of property.

4.8 Building, housing and sanitary codes and performance standards

Building, housing and sanitary codes ensure the meeting of minimum standards to produce sound building. They also affect community design appearance with their specifications of the use of certain materials and certain mechanical features. Sometimes they may be obsolete. Here, again, allowance must be made for innovation supported by proof of validity. Some building codes do not allow the construction of modest row houses, particularly narrow ones. They also may be so burdened with semantic complexities that the deft and unscrupulous find ways of fulfilling the letter of the law while flouting its intent.

One attempt to correct this deficiency has been the use of performance standards, which state the requirements to be satisfied, leaving the methods up to the designer. For example, rather than specifying that the area of a window shall be such-and-such a percentage of a room's floor area, it is sufficient to say that the window shall provide ample light and air (Spreiregen, 1965:181).

In South Africa building is regulated by the National Building Regulation and Building Standards Act 103 of 1977 (Van Wyk, 1999:165). Municipalities sometimes use article 7 of this Act to control the aesthetics of a proposed development (Interview with Myburgh, 14/09/2001).

4.9 Urban resource preservation and adaptive reuse

Closely associated with the values and purposes of urban design and planning are the practices of urban resource preservation and renewal. The importance of

conserving buildings and districts of historical and architectural significance in planning a well-designed and vigorous city is now so imbued in the ethics of planning and design as to be axiomatic. The protection of a city's physical assets, whether historic buildings like the Alamo in San Antonio, or architectural masterpieces such as Frank Lloyd Wright's Robie House in Chicago, or entire districts like the Vieux Carre in New Orleans, can be well justified on sound urban design and planning principles as well as on historical grounds (Lai,1988:218).

Saving older buildings of merit is much more than an exercise in nostalgia because such buildings provide a sense of continuity and are an irreplaceable record of changing vision and value. Their continued presence adds to the complexity and richness of any city or town (Hedman & Jaszewski, 1984:35).

The cultural and regional differences that once created the rich diversity of historic architectural styles distinguished not only among national idioms of city design, as between London and Paris or Cape Town, but varied regionally within nations. The individual identity of older American cities – New Orleans, Boston, and San Francisco – is largely attributable to their historic buildings and original urban fabric. As techniques in architectural design became more universal, however, and as industrialized processes and materials in building construction became more standardized, the cultural and historical design characteristics that lend individuality to a city become blurred. The result is often a dreary sameness in the urban imagery of communities with neither a visible past nor a perceptible, individual distinction (Lai, 1988:218).

Parfect and Power (1997:87) contend that preservation can also be argued for other reasons beyond the protection of old environs and the enhancement of their special charm or aesthetic quality. Maintaining a community's cultural heritage, encouraging the civic pride that historic and creative buildings can engender, and conserving irreplaceable urban artifacts as resources for the education of future generations are all purposes of public concern.

Economics adds another reason; landmark and historic-district preservation can stabilize or increase neighbouring property values and promote the attractiveness of the city for tourism and economic growth. Nevertheless, especially in rapidly developing urban areas, old buildings and districts have all too frequently been razed to make way for new design and construction. Lai (1988:219) maintains that communities that have foresight and a will to pursue preservation can, however, find ample precedents in the law to support their cause. He cites as precedent the American experience where although preservation of architectural and historic landmarks had a belated start with the Americans' preoccupation with expansion and new development, it now enjoys wide support. Over the past fifty years, all the states and over five hundred municipalities have enacted laws encouraging or requiring preservation of buildings and sites of historical or architectural significance. Federal initiatives have been a primary motivation to adopting preservation legislation, particularly in the 1930s, when the Historic American Buildings and Sites Survey were begun, and the Historic Sites Act of 1935 was passed, which declared historic preservation as national policy and consolidated federal preservation activities within the National Park Service. The year 1949 saw the founding of the National Trust for Historic Preservation, which has been instrumental in encouraging and coordinating on a national basis state and local efforts in preservation and preservation legislation (Lai, 1988:229).

In 1966, Congress passed the National Preservation Act authorizing the Secretary of the Interior to maintain a national register of districts, sites, buildings, structures, and objects of historical, architectural, archeological, and cultural significance. Under the Act, any federal or federally assisted undertaking must take into account the effect on landmark items included in the National Register and to provide the Advisory Council on Historic Preservation with an opportunity to comment. The provision is similar to the requirements of the 1969 National Environmental Policy Act, which calls for an environmental impact

statement to be filed before any federal action is begun that may significantly affect the "human environment", a term considered broad enough to include historic areas and structures (Lai, 1988:230).

Furthermore as Lai (1988:230) notes the Historic Preservations Act Amendments of 1980 gave state and local governments more authority and funding to carry out historic preservation programmes and also provide a loan insurance programme to stimulate private initiatives in preservation. In 1981, federal tax incentives were supplanted by tax credits that provided even greater economic incentive for historic rehabilitation. These tax credits resulted in a spectacular increase in the restoration and remodeling of older buildings through the early 1980s.

The legislation in South Africa requires a developer to get special permission from the South African Heritage and Resource Agency (SAHRA) before any building older than 60 years can be changed or demolished. A heritage impact assessment is then required in terms of Section 38 of the National Heritage Resources Act, Act 25 of 1999.

Certain towns with an historic character like Stellenbosch have voluntary special interest groups, which help with the preservation of historic buildings. The Stellenbosch Interest Group is an example of such a voluntary group whilst the Heritage Committee enjoys a more formal status as an advisory committee of the Town Council. In an interview with a planner, (Ms. Nieuwoudt, 08/11/2001), at the Stellenbosch Municipality, explained that the Heritage Committee consists of architects, the public and officials, who must evaluate any planning request regarding the historical core of Stellenbosch. If necessary their input can also be used outside the historical core if the planning department of Stellenbosch municipality deems fit.

Controls regulating building in the historical core of Stellenbosch are contained in the Zoning Scheme of the town. The purpose of these controls is the preservation of the unique character of the historical core, especially Dorp Street by:

- the preservation of existing old buildings of historic or aesthetic interest;
- the preservation of existing building lines;
- the preservation of the oak trees, which have already been proclaimed as part of the national heritage.
- the control of building design and building lines of new development on previously vacant sites;
- the control of building design and building lines if existing structures are replaced or expanded.

The formal designation of a building as a landmark in law cannot, of course, deprive the owner of all use and value of his property. Accordingly, most preservation laws impose no special restrictions, beyond the normal zoning regulations, on the interior use of buildings. Thus in most cases, the owner of an historic building is free to convert the interior of the structure to serve a more utilitarian and economic purpose than its possible obsolete, original function. Some decry this type of alteration to historic buildings. However, as Lai (1988:231) points out that accurate restoration, preservation, and maintenance of historic buildings in keeping with their original function are expensive undertakings usually requiring their outright acquisition by public agencies or generously endowed private preservation groups. As an alternative, adaptation of older structures to serve contemporary functions has advantages that are particularly attractive from the standpoint of urban center rejuvenation and design. Not only can adaptive reuse derive maximum economic returns from otherwise functionally obsolete structures, but it also can reintroduce such buildings into the urban fabric of contemporary society, giving them a functional life and vitality that is ordinarily denied buildings preserved as museum artifacts.

Lai (1988:241) goes on to explain that just as the first quarter of the twentieth century saw the development and acceptance of zoning as a planning tool of local government, the closing quarter witnessed the gradual acceptance of local governmental authority in wielding the legislative power for more definitive ends in design. The acceptance of this role in the interest of public necessity and public health, safety, and morals has gradually expanded to embrace consideration of public welfare, economy, and even convenience. Not least, the idea of beauty has gained ever-increasing legitimacy as grounds for regulation under the law. The objective need not be limited to such purposes as the purging of eyesores like billboards and junkyards or the preservation of historic and architectural landmarks, it can extend to the design control of private development to ensure conformity to community preferences in architecture and to enforce public goals in urban design.

Parfect and Power (1997:88) list eight benefits to be gained from a policy of preservation and reuse of old buildings:

- A benefit to the environment in general, in terms of preserving our architectural heritage on its own merits.
- An economic encouragement and enhanced financial return, via the retention and reuse of old buildings for commercial, residential and, in particular, tourism purposes.
- Material savings in terms of prolonged life of existing building fabric, and the consequent reduced demands upon new or replacement materials; and the corresponding energy savings associated with avoidance of new construction works.
- The "boosting" effect of building conservation upon whole areas or neighbourhoods, on a accumulative basis, compared to the replacement of large numbers of old properties by large new commercial blocks.
- In the case of commercial development, congenial and prestige accommodation can alternatively be provided, often in central locations,

e.g. for office uses, by the individual (or collective) reuse of older properties.

- In the case of housing development, additional residential floor space can be provided, often of an attractive character, by the conversion or subdivision of old buildings.
- In the case of tourism needs and responses, a wide potential exisits for the provision of attractive and interesting historic buildings and areas to visit.
- Reuse of certain old buildings for housing the homeless or socially/economically deprived would certainly help to meet an acute need, provided adequate safeguards are built in for the physical upkeep of the fabric and maintenance of its character.

According to Parfect and Power (1997:182) The Victoria and Alfred Waterfront development in Cape Town is both a successful commercial venture and an object lesson in the revitalization of a working dockland area which retains and enhances historic buildings with the addition of equally attractive new ones – all to a uniformly high architectural/environmental design level (Photo 15).

Figure 30: The Victoria and Alfred Waterfront – historical buildings (Cape Town Heritage Trust, 1994:4,7)

Photo15: The Victoria and Alfred Waterfront

There are different approaches to the development of historical areas. The first is an approach where the developer attempts to create duplications of the historic buildings. This approach often lends a fantasy "Disney Land" quality to the development that may seem fake to some people while others interpret it as a manner of escapism. The second is an approach where the historic buildings are contrasted by new contemporary buildings. In this way the historic buildings are accentuated and a new interesting environment may be created.

4.10 Innovations towards flexibility

Perhaps the most widely accepted innovation toward flexible administration is planned unit development (PUD), a technique that permits the public planner and the developer of large scale projects to cooperate and to override the constraints of segregated land use and the predetermined "cookie-cutter" development traditionally associated with zoning. Essentially, PUD is a method of flexible land subdivision that permits the use of newer design concepts, such as integration of varied types of land uses, cluster development, and communal open space. It is closely related to a concept of control known as "floating zones", an earlier method of zoning flexibility that experienced only marginal acceptance. Floating zones have frequently been opposed by neighbouring property owners who have seen in this tool the destruction of perceived stability in pre-established zoning (Lai,1988:153 and Behrens & Watson, 1996:26).

Lai (1988:155) notes the positive attributes of this approach as follows: the flexibility of PUD has allowed greater diversity and interest in subdivision design as well as more efficient use of both land and infrastructure. Indeed, many communities actually provide incentives, such as increased overall development densities, to encourage PUD design. Today it is generally recognized that the flexibility made possible through PUD has had wide benefits for developers and communities alike, allowing new forms of suburban and community development to be realized.

In an interview, held with the acting area coordinator of the Blaawberg municipality (Ms. Du Toit, 12/09/2001), she also said that they have successfully used planned unit development (PUD) where large scale developments are concerned for example Century City in Cape Town as well as a proposed redevelopment of the Milnerton race-course.

Century City's development contains a wide variety of land-uses including commercial, entertainment and office uses. By using planned unit development it was not necessary to subdivide and rezone this large property, which would have taken considerable time and which because of increased cost, inflation, escalation and the like would probably have influenced the development negatively. Instead a set of plans containing information on the overall idea of the development to the detail of the buildings that were planned were submitted at the outset to the municipality. In this way the developer was accommodated and the municipality was able to exercise control of the urban form – the result from both points of view is regarded as successful (Photos 16 and 17).

Photo 16 and 17: Century city, Cape Town: a shopping center competing with the CBD, Tygerberg and the V & A Waterfront.

The post-modern theme of this development creates an environment where one can escape from the outside world. Its location enhances this feeling, being situated just outside Cape Town on a level open area as seen in Photo 16. This type of development for escapism – the creation of hyper-reality - seems to be a popular trend being favoured by developers, other examples being The Lost Palace, Sol Kerzner's hotel complex and the Bona Venture Hotel in Los Angeles.

4.10.1 Performance zoning

Another recent development in land use regulation, also intended to increase flexibility, is the use of performance standards in place of conventional use classifications in zoning. Technical improvements in methods to abate the noxious consequences of development, particularly of noise, odours, and pollutants resulting from industrial activity, as well as advances in standard measurements of such pollution, have led to the idea that building permission can be based on performance in controlling a potential problem rather than on the type of use itself. The willingness of an industrial developer to install equipment to reduce air pollution, for example, might qualify his proposed development as acceptable in a zone where it would otherwise be prohibited. Although this method of control seems largely applicable to industrial developments, proponents of performance zoning suggest a wider application, with performance variables embracing such considerations as density, site capacity and ratios of open space, floor area and impervious surface coverage (Kendig,1980:23).

4.10.2 Environmental Impact Assessments

Although the application of Environmental Impact Assessments (EIA) is generally construed in terms of protecting the natural environment, environmental impact assessments have also been effective basis for development control in the

context of urban design. In its 1978 decision *Polygon Corporation v. City of Seattle*, the Washington Supreme Court found that the State Environmental Policy Act of 1971 conferred upon the city discretionary authority to deny development permission for the construction of a thirteen-storey condominium project on grounds that the building design would result in adverse environmental impact, primarily of an aesthetic nature. Rezoning of the multiple-residential, high-density zone was not an issue, for the developer was not prevented from full use of the zoned area. The EIS even suggested alternative configurations of multifamily design that would have a less adverse effect on the environment. The specific design proposal was, however, considered to be totally out of scale with neighboring structures, interfering with views from several directions as well as from a nearby park. It was found furthermore that the projected design would cast a shadow over surrounding properties and would cause an increase in traffic and noise.

Lai (1988:157) points out that using an environmental impact statement to control urban design is by no means isolated to this case. In other states with strong requirements for environmental impact assessments, such as California, planning authorities have made use of the environmental impact report requirements to control urban design in much the same manner.

Locally, for example the Thesen Island development in Knysna had to comply with a list of about a hundred requirements laid down in the environmental impact assessment, before the development was approved. The main developer, said in an interview that the strict requirements the development had to adhere to in terms of the applicable control mechanisms was definitely in the interest of the development, (Chris Mulder, 11/05/2001). This "preferred lifestyle" development being developed along new urbanism lines in the ecologically sensitive area of the Knysna lagoon is believed to make a positive contribution to the whole area. How the environmental impact assessment influenced the form of the development is to be seen in the lay-out and depth of the canals; the height of

the buildings; the density of the layout; the provision of open areas; limited access to the surrounding lagoon and the type of storm-water drainage used (Figure 31).

The development tends to imitate the vernacular of Seaside, a town developed along New Urbanism lines, which is seen as the "perfect" American community. Seaside's architectural standards reflect the region's traditional buildings and attempt to recreate the form of the past to recreate a remembered/idealized way of life and thus imposed their own vision of what is best for the development (Burgess, 1997:100). The shortcoming of the Thesen Island development is that the development follows the philosophy of the New Urbanism but does not adapt the vernacular style to reflect Knysna's traditional buildings. However according to popular opinion the development is successful and it creates a particular life-style. This holds true to the trend that people prefer environments that are more real than reality (hyper-reality).

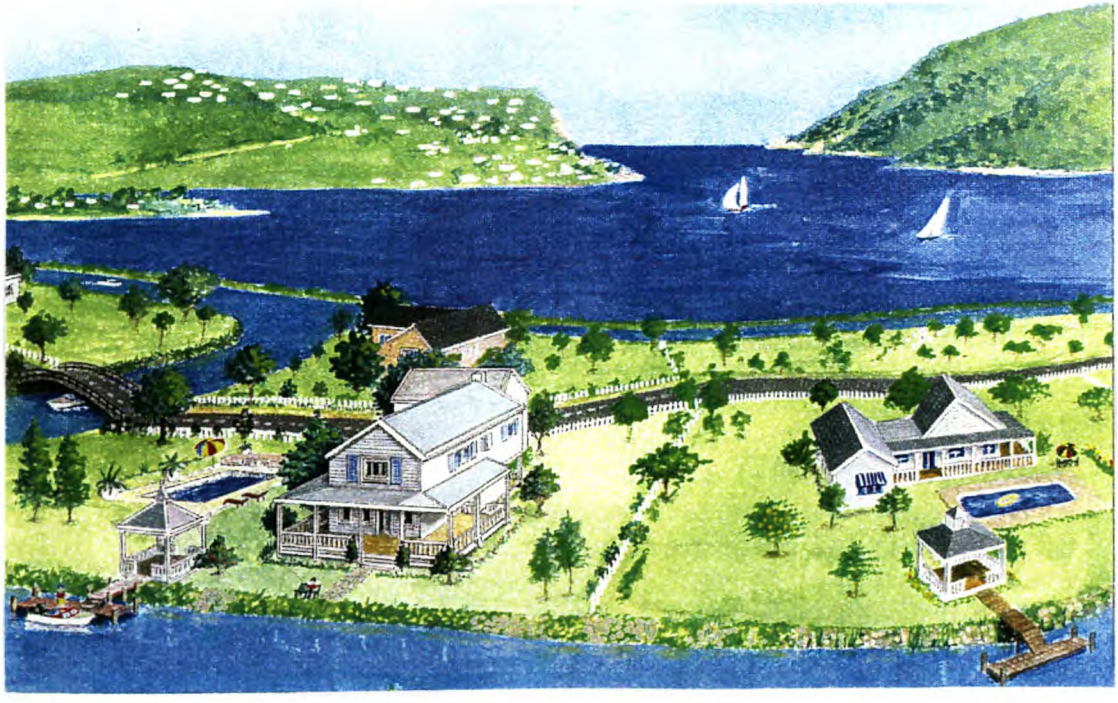


Figure 31: Thesen Island development (Artistic impression – Chris Mulder Associates)

4.11 Aesthetic control

According to Punter (1990:1) the term, design control is rarely, if ever, defined and is subject to many different interpretations. To all intents and purposes in Britain it is the control of the external appearance of development – its architecture, landscaping, open spaces, car parking, service yards and any other amenities it provides, through the provisions of the Town and Country Planning Acts. These acts require permission to be obtained for any development broadly defined as most new buildings and major alterations of buildings, walls, hardstanding etc. That permission is given subject to what statutory development plans say can happen on a particular site, but the plan is only one consideration in deciding whether or not to grant planning permission. The legislation allows "other material considerations" to be taken into account, and of these considerations the broad area of design constitutes a major part. However considerations of land use, infrastructure capacity, location, safety and functional efficiency are usually equally significant.

Town planning as a regulatory activity may be judged by what the public see built. Development may be likened to public art. External appearance is a major material consideration in development control decisions in Britain. Aesthetics is concerned with beauty: both man-made buildings and works of nature can be beautiful. In this regard Thomas (1997:67) asks a number of questions: Are aesthetic qualities objective or subjective? Are developments beautiful or ugly independently of the minds of those who make development control decisions? Are aesthetic judgements more to do with emotional and spiritual appeal? What is good taste and bad taste? Are architectural styles merely a matter of fad or fashion? Are there basic objective rules that we can apply to aesthetic judgement or are aesthetic judgements subjective? And what do we mean by quality in the environment?

Design, aesthetics, environmental quality, the qualitative dimensions of development control decision making, have tended to be shrouded in subjectivity. There has been, since the inception of town planning in Britain, a conflation of "aesthetic" with "external appearance", and of "external appearance" with "design", to the chagrin of many architects and planners. Historically, aesthetic control has become associated principally with the control of building elevations, especially in the eyes of Central Government. The latter have consistently sought to prescribe the limits of Local Planning Authority intervention in this arena to only a "prevention of outrages" role, exhorting local planning committees to accept the banal and mediocre in the interests of getting development on the ground (Punter,1990:1).

Part of the difficulty with aesthetic control springs from the differences in perception and interests of the general public and planners or others with design training (Hubbard, 1994:271).

Many commentators on urban design, largely American-based, have returned to a more holistic conception of aesthetics as embracing total experience (including the commonplace). They have considered the activities within, and meanings attached to buildings and places as fundamental concerns of urban design and planning control and indeed of aesthetics. Incorporating these broader perspectives one might adopt Punter's (1990:2) working definition of aesthetic control: "Aesthetic control is that aspect of the regulation of development that seeks to control the physical attributes and uses of new buildings, and the spaces between them, so as to ensure a rewarding sensuous experience for the public who uses the environment thus created".

In this sense aesthetic control or design control are essentially "applied urban design" which concentrates upon the physical design of the public realm. Urban design embraces a range of skills to ensure that the design, implementation, and management of development create efficient attractive, and socially useful

environments. Design control provides the mechanism for translating these concerns into the shaping of the development or redevelopment of individual parcels of land for which any developer has to get permission. Many writers, particularly architects, have sought to distinguish control of elevations from control of other aspects of design like height, set-back, layout and car parking. Many concede that it is legitimate for development controls to impose controls on three-dimensional aspects of planning, the building envelope (height, width, bulk etc.), but that it is not legitimate to control elevations, which they isolate and define as "aesthetic control". Punter's working definition of aesthetic control adopted here makes no such distinction because it argues that aesthetic impressions of the urban environment are a totality, not merely a response to the building's façade.

Untill recently it has been difficult for zoning ordinances or other regulatory techniques operating through the law to effectuate appearance controls. Courts are reluctant to deal with matters which they deem to embrace "esthetics". Aesthetics must be shown to be a real community value, a real basis of property value – a status it does not yet have. Some design elements, however, can be stated in definite terms. Aluminum awnings or fake façade materials may be ruled out of an area because they are specific and not matters of subjective judgement. This suggests that "special-character areas" can be created under zoning administration. Likewise, courts are reluctant to designate historic areas – unless such areas can be shown to have a uniqueness of antiquity and tourist attraction value. This limited view needs enlightenment (Spreiregen, 1965:182).

Madanipour (1996:163) highlights some concerns through the following questions: How substantial are the aesthetic considerations in a development? Is the aesthetic control really an important part of the planning process? Is it meaningful to hinder a development, which can be potentially beneficial to a local economy, on aesthetic grounds? In the face of the difficulties that the restructuring of the global economy has inflicted upon individuals and

households, and therefore collectively on towns and regions, the main issue seems to be the battle for survival for the more disadvantaged regions. Is it realistic to give any significance to aesthetics as distinctive from or, in some cases, as opposed to job creation and the well-being of a community? In the context of the depressed economies all over the world, is aesthetics not a preoccupation of the more prosperous economies? Even within a relatively wealthy society, is it not more a concern of the middle classes whose more secure standard of living allows them to concentrate on cultural matters?

These questions are part of a long-standing cultural debate. The relationship of aesthetics and the social and economic considerations is a crucial part of cultural studies (Hutcheon, 1992 - in Madanipour, 1996:163). To address these questions, one approach would be to trace the evolution of a mass culture as distinct from, and challenging, high culture. Within the context of the cultural forms with which large sections of communities readily identify themselves, and its challenge to the aesthetics of the establishment, we can look for some answers to these questions. What needs stressing, however, is the importance of aesthetic experience to human beings, which is of equal significance within the context of both high and mass cultures. Much of the modern thinking about aesthetics has been influenced by Kant, who divided the mental faculties into theoretical, practical and aesthetic. He suggested that the sense of beauty is a distinct and autonomous employment of the human mind comparable to moral and scientific understanding (Scruton,1979 - in Madanipour, 1996:163). An example of the continuity of this conceptual approach is the work of Jurgen Habermas, whose models of action and rationality are set out to address the instrumental, social, and aesthetic dimensions of the human actions simultaneously (McCarthy, 1978; Dews, 1986; White, 1988 - in Madanipour,1996:163).

The aesthetic choice in individual and collective life may be significant, but where does it figure in our list of priorities? In other words, are cultural identity and

quality of the environment as important as economic development and the more material needs of life? When formulating public policy or taking collective action, what are the chances that the quality of the environment will be properly addressed? According to Madanipour (1996:165) the answer is bound to be, based only on instrumental rationality, that these chances are less significant than when social and aesthetic concerns are taken into account.

Apart from severe crises, it would be a grave simplification of human nature to hold the view that below a certain level of income and living standards, aesthetic choice disappears or loses its meaning, to be replaced with desperation. What looks from the outside to be poverty of means and a battle for survival, always contains a process of aesthetic judgement. No matter what the circumstances, aesthetic choice can be found in almost all human conditions as an important part of understanding and action. Apart of the most extreme cases of individual and social crises, when the rhythm of life is entirely disrupted by disasters, human beings are involved in a mental or actual process of aesthetic judgement and choice. This is a crucial component part of individual and collective identity and the absence of it could lead to alienation and a crisis of identity.

In this chapter many types of control mechanisms and many ways of using them were discussed. Planners and urban designers can wield them to the benefit of communities if they fully understand the influence these control mechanisms have on the urban form and on each other. In the following chapter the use of these control mechanisms to direct urban form is explored.

CHAPTER 5
THE USE OF CONTROL MECHANISMS IN DIRECTING URBAN FORM

With their attention focused on the design quality of individual buildings, regulating communities and their architectural review boards have frequently lost sight of the underlying purpose of design regulation. It is not so much the merits or deficiencies of individual building designs that should weigh in the balance as the relationship of the proposed project to the design context of the whole community. Or, put another way, the focus should be on urban design. From this standpoint, Lai (1988:320) contends that design review should correctly confine itself to a narrow consideration of one essential criterion: whether the design of any proposed development can be considered such a potential nuisance as to subvert the public welfare by detracting from the stated goals and policies of the community in terms of design character, harmony, and beauty.

In recent years, the planning administration of some larger municipalities, notably New York City, San Francisco, Cape Town and Durban, have attempted to address the issues of community appearance and design through comprehensive planning approaches to design regulation. By formulating definitive public policies on urban design as well as articulating and enforcing building standards based on those policies, these city governments have endeavored to coordinate development toward affirmative planning objectives, thus minimizing the perception of piecemeal and negative regulation. Predetermined, explicit standards and quantitative criteria not subject to discretionary interpretation are followed to reduce inconsistencies in enforcement and to lessen the possibility of being ruled, "void for vagueness."

Whether as a result of the past tendency for development pressure to be greatest at the suburban fringe of metropolitan centres, or as a consequence of

the capacity for zoning to protect residential values, the practice of planning controls has focused, until recently, on suburban rather than urban issues. Since *Euclid v. Ambler* in 1926, the vast majority of zoning cases have occurred in the suburbs and not the centre of cities. With redevelopment pressure increasing at the urban core over the last twenty years, however, a change is becoming evident. Using principles of land use zoning and building regulations developed in the last half century, planning administrations of large cities have become increasingly aggressive in managing the three-dimensional design development of their cities. These municipalities have found the legal basis for their design controls in the established law of American land use regulation (Lai,1988:321).

Lai (1988:324) contends that in the same way that suburban communities have used zoning incentives such as additional unit allowances and commercial use permits to make well-designed planned unit developments attractive to residential builders, cities are offering inducements, such as bonus floor-area ratio (FAR) allowances and other forms of regulatory relaxation, to encourage urban developers to comply voluntarily to optional design standards and to provide additional public amenities. This incentive approach to urban design control, which tacitly acknowledges regulation exceeding the normal constitutional limits on police power, is being used in combination with other recent methods of planning regulation to give zoning, particularly in New York City, a dimension of design control never envisioned in the 1920's. Though New York's programme of urban design and architectural regulation has not been without its problems it is a worthy example of innovation in planning.

Urban designers who seek design controls for their own communities patterned on those used in New York City should be aware of the underlying premises: the market incentive for development in this city is overwhelming and New York enjoys a buyer's market for development that few municipalities can match. For all communities, urban design regulation has substantial implications in terms of economic planning policy. If a city prescribes conditions for development beyond

what the market can bear, developers may decide to relocate their projects to communities where the cost imposed by planning and building regulations are less burdensome. In short, even the best-conceived urban design and planning controls can have an exclusionary effect.

To successfully implement plans and codes like New York's, where authority is derived more from the police power than from capital expenditures, public planners and urban designers must be schooled sufficiently in the ways of the law to be capable of laying out a structural framework (the so called invisible web) that is both legally sound and conducive to superior urban design. As the experience of New York City has shown, inadequate consideration or faulty urban-design controls can result in inferior urban design as much as in legal difficulty. Lai (1988:351) stresses the fact that the pyramidal wedding-cake forms of the New York city skyline, the lifeless plazas and public arcades and the monotonous gridiron plan of most American cities are testament to woven webs of planning law whose effect on urban form was either unanticipated or flawed and it would be naive to believe that good, imaginative design can ever be attributed to regulation alone. Public regulations, including incentives, can encourage and perhaps foster but cannot substitute for design creativity.

Rudlin and Falk, (1999:51) come to the conclusion that there is perhaps another lesson that we can learn from the twentieth century attempts to tame the city. They questioned the philosophy of twentieth century planning but they also said that it might also be that there is something inherently flawed with the idea of imposing a conventional land use plan on the complexity of urban life. The best and most enduring places seem to have grown organically over time within a planning framework rather than to have sprung from the inspired hand of a single master planner. Yet in Britain they have been obsessed with grandiose end-state plans. The town centres and housing estates conceived on the drawing boards of the 1960's looked fine, but these bore little relation to the situation on the ground within a few short years.

According to Rudlin and Falk (1999:51) this is a lesson that we have not learned. Architects are once more producing plans for the redevelopment of housing estates to sweep away the mistakes of the past. Is there any more chance that they will get it right this time or is the very process of conceiving a neighbourhood on paper and building it over a few short years a recipe for failure? However the people with the real power to undertake comprehensive development at the end of the twentieth century are not weak under-funded councils but private developers. Far from being able to impose its will on the city, the modern planning system struggles to control a market in which sprawling supermarkets, out-of-town shopping centers and business parks bring the greatest profits.

5.1 The lost art of city building.

Rudlin and Falk (1999:236) are of the opinion that we should not make the mistake of believing that there is one correct model for urban areas and that our troubles would be at an end if only we could discover it. The key is not to find the right physical model but to discover or rediscover the natural process of city building, which enables a city to work towards and to constantly reshape that physical model to one that best meets its needs. There are however many powerful barriers which block this process of urban development such as: planning policy, a fragmented approach, end-state plans and negative planning.

- Planning policy

The first of these barriers results from the policies and attitudes which persist in many parts of the planning system. Utopian models of twentieth century planning have been discredited and yet their legacy lives on in the minutiae of planning policy. These include the reduction of densities, the promotion of public open space, the zoning of different uses and the creation of an efficient transport network. While taken individually these policies seem perfectly reasonable, their

cumulative impact is to undermine the character of urban areas and to distort the natural process of urban growth.

- A fragmented approach

The different role players in the planning process (architects, urban designers, planners, developers, engineers, politicians) are each responsible for a small part of the urban fabric around which they have evolved a professional philosophy which optimises its performance from their perspective. But they have no responsibility for the whole and a poor understanding of the motivation of other players. This blinkered approach is reflected in some engineers being exclusively concerned with easing congestion and reducing accidents, house-builders with catering for the aspirations of buyers, developers with maximising the return on their investment and planners with minimizing the impact of development. It is hardly surprising that this leads to conflict and makes it difficult to develop a coherent approach to urban areas.

- End-state plans

There has long been a debate about the way that public policy should influence urban areas. There was a great deal of interest in the 1970's in the concept of cybernetics in which the process of planning and the process of urban development ran side by side with the former seeking to influence and guide the latter. However it is easier to think in terms of end-state plans, be they a local plan or a master plan drawn up for a development. Such end-state planning starts with a decision about how an area will be in the future and then works towards achieving this vision. If the master plan is confined to the "trellis" on which the city can grow, as Hausemann's Paris, it can be very positive particularly if it creates confidence and certainty. However plans tend to be more prescriptive than this and define not only the framework but the type of uses and the design of buildings to be developed as part of the plan. This works against

the evolutionary process of urban development and has one of two results: either the plan is not completed and is undermined by later development or it is completed and people wonder why it looks so artificial.

- Negative planning

The final problem with the planning system is that it only really has the ability to say "no". The planning system established by the 1947 Town and Country Planning Act, in Britain, was based on the assumption that the majority of developments would be undertaken by the public sector. At the time four out of five new homes were being built by councils or in new towns. When the act created local planning authorities and required them to develop five-year plans for their area it was therefore assumed that they would also have the power to implement these plans directly. At the same time development land rights were nationalised and private developers were required to apply to the local authority for permission to develop or change the use of land. The situation since then has changed radically and the majority of new development is now undertaken by the private sector. A system designed to deal with a small rump of non-public sector development has therefore become the main tool to shape the pattern of settlements. The planning process is therefore a very negative process designed to prevent the unacceptable rather than to promote the ideal.

Rudlin and Falk (1999:237) continue to say that while the process of development could be seen as the product of capitalism unconstrained by planning law, we need look no further that the cities of the new industrialised nations like Taiwan to see that the commercial forces that created the medieval city or the later industrial Victorian cities like Leeds and Manchester, are now so strong that they dwarf the capacity of even the greatest cities to control and shape them. This is not a phenomenon confined to the Far East. Similar forces can be seen at work in the UK where relaxed planning controls in the Enterprise Zones of the 1980's in areas like London's docklands did not create well

mannered urban development but the excesses of Canary Wharf. Kostof (1992:102) compares Canary Wharf to La Défense in Paris as examples of second-generation European Central Business Districts built beside ring highways. La Défense was built in 1956 to accommodate post-war growth without destroying the city centre. It was erected along government guidelines by private enterprise, which pressed for greater height, density and freedom from design regulations.

Figure 32: The modern buildings of La Défense, in the distance, tower above central Paris (Kostof, 1992:102).

On the other hand the fact that commercial forces are abandoning large parts of our cities is something that the planning system finds difficult to deal with. Clearly we can no longer rely on the so-called "evolutionary" forces of development to produce successful urban areas. The developers, financial institutions and international companies that shape the modern city are very different to those who built the traditional city. Buildings are developed for occupation by others and, in a global market international design styles rather than local character hold sway.

Sandton city, Johannesburg's "new CBD" or second generation CBD, is an example of how cities are shaped and decentralised by developers. An article in a popular magazine reflects the public's opinion and their experience of this area. Gevisser (2001:87) is of the opinion that Sandton City is South Africa's premier "aspirational" area. When the complex was first built, it was a "brutal pre-cast concrete monument to the High Apartheid boomtimes" of the mid – 70's with the only black people being the cleaners. Things have changed drastically and now the center is predominantly catering for the black market.

The philosophy around development in Sandton is that if you have money, you too can buy your share of the skyline, regardless of where you come from – or what the consequences might be for the environment and the future of the city. A land-grabbing frontier mentality prevails - Johannesburg was developed around gold mines and Sandton has taken shape around a shopping mall. Wolf Cesman, who headed the Sandton City development for Liberty properties is of the opinion that they never intended to create a new town center but intended to make money by building a regional shopping centre. In carrying out this intention they created the infrastructure and the impetus for a town. This clearly shows that the driving force behind development in Sandton is the profit motive of developers.

In the last two decades of the 20th century, Johannesburg's developers largely abandoned the grid which contained the CBD and began developing Sandton outside the city. With little regulation, or any sense of how their developments would knit together into an urban landscape, developers bought and built. Market forces encouraged this trend because people began to move out of Johannesburg's CBD which was progressively showing signs of decay.

Sandton creates a landmark from a distance because it is built on a hill, like a medieval city and resembles a fortress, but on a 1:1 scale it creates another experience – one of being lost and excluded (Figure 33). This is the result of the haphazard approach towards development and the resulting problems with

infrastructure. The main reason for the anti-urban experience is that the streets of Sandton are nothing more than concrete channels between impenetrable facades, ferrying cars of consumers and workers from one sealed "fortress" to another and there is no chance of creating a dynamic public realm on street level. Each "fortress" though has its own microclimate, and creates its own escapist fantasy which seems to be a popular attraction for consumers and investors.

My own experience of Sandton accords with Gevisser's (2001:88) views and is that of moving from streets with heavy traffic into a fortress-like basement parking area and continuing along neon-lit walkways to finally reach the main attraction of the Sandton City shopping centre – Sandton square which imitates an Italian square. The effect is an artificial square in an environment that was created for profit and escapism from the busy outside world.

Figure 33: Sandton – a second generation, decentralised CBD (Gevisser, 2001:88)

It is not only the pace of change that has accelerated, because even today there is little to rival the explosive urban growth of the industrial revolution, but also the view that developers take of the future. Whereas in the past developers built monuments to themselves which they expected to last forever, today investors are concerned with the investment return over ten or, at most, twenty years: the building becomes a disposable commodity. At the same time developers and investors are abandoning large parts of our cities. The problems here relate not to unconstrained growth but to decline, which can be even more corrosive to the quality of the urban environment. Here the planning system lacks the capacity or will either to prevent the dispersal of activity or to promote development in the inner city. The planning system seems to be based on the assumption that there are an infinite number of developers willing to undertake any type of development on every site and all that is required is the designation of a use in the local plan to achieve development. However, if there are no developers willing to undertake the development the site will remain vacant and conventional planning approaches are powerless to promote development. In South Africa the Integrated Development Plan is intended to be used to direct growth rather than to predict or to dictate growth. In this context public/private partnerships could be formed to encourage development in areas where conventional market forces have failed.

A new approach to the planning of urban areas is needed if we are to secure the repopulation of cities and the promotion of sustainable urban neighbourhoods. According to Rudlin & Falk (1999:238), in many urban areas all that is required is the reversal of detailed policies which currently prevent the development of urban form.

However in some parts of the inner city an urban structure no longer exists. Here something more radical is required to recapture the lost art of city building. Three sub-headings will highlight the following: simplified planning zones, design guides/codes and planning with the community.

- Simplified planning zones

One possibility is the reduction of planning control over areas where it is desirable to promote development. If it is true that the introduction of planning controls has distorted the natural process of development then it may follow that a relaxation of these controls would allow it to emerge once more. To an extent this was tried in England in the 1980's through Enterprise Zones which were based on the belief that the bureaucracy of planning was one of the impediments to inner city regeneration. This concern was never really justified. While the need for planning permission could often delay schemes, local authorities keen to promote development were already reluctant to refuse or even influence development for fear that the investment would be lost. As we have seen earlier this is also the case with local authorities in South Africa. It is also clear that the experience with Enterprise Zones did not lead to high quality urban development. The removal of planning controls alone is therefore not the answer.

Rudlin & Falk (1999:239) consider it possible to devise an alternative approach to development: one which may lead to the creation of urban form without relying on the planning system. They have postulated in the past that one of the ways of creating a dense mixed-use urban area would be to establish a street network, divide each of the urban blocks into small plots of say less than two thousand four hundred square meters and to auction these blocks to developers while removing all requirements for planning permission. This would be interesting to undertake as an experiment although the results would be very difficult to predict. It is based upon the idea that the form of traditional places is not the result of controls but is quite tightly constrained by the circumstances of development. In a traditional town, if sites are small and hemmed in by other buildings and land prices are high, then there is little option but to build densely and to the edge of pavement if development is to be viable. If such circumstances were recreated artificially there may be less need for planning controls.

Rudlin and Falk further note that the auction of a series of small sites within an existing street framework could do just this. The small size of sites would create a fine urban grain, would promote a variety of development and allow a range of smaller developers to participate. It would also create robustness since any mistakes that were made would be small and easily repaired. This would even be the case if developers were able to create larger sites by bidding for more than one plot or by buying up plots from other developers. This process of site trading could also create a land market in the area inflating land values and creating another of the conditions for urban development.

Even if the sites were to be consolidated the façade handling would need to reflect the original dimensions of the sites so as not to render the ensuing scale of development out of keeping with the rest. The effects of this are illustrated in the Bergzight Plaza development in Stellenbosch (Photo 18), which in the architectural handling of the facades attempted to create smaller separate sections, to break-up the bulk of the building. The effect however tends to be ineffective because of the "pasted-on" quality of the façade.

Photo 18: Bergzight Plaza, the articulation of the façade (Developer's brochure).

The approach of using a series of small sites has been tried in the development of Dutch new towns. Here small plots have been sold to developers with minimal planning controls attached. Developers are only required to respect the building line and to join their building to those on adjacent sites: otherwise they may build whatever they wish. It may be that in its purest form and building in the Dutch vernacular tradition this approach may work but is unlikely to be successful in the UK or South Africa for instance. However it may be possible through the use of a mechanism like a simplified planning zone to develop some of the ideas. In such a zone a set of planning policies would be set out in advance and any development which met these policies would be able to proceed without planning permission. This begs the question as to what these policies should be. One possible answer is the urban design guide.

- Design guides and codes

In the absence of the shared knowledge and understanding of limiting conditions that gave rise to an "organic order" as existed in the past, the adoption of a guide can be a powerful tool to transforming urban development. Rudlin & Falk (1999:240) describe the design guides of Hulme and Manchester and the effect they have had on the city. One of the most important aspects of the Hulme redevelopment was that it was decided not to have a master plan so as to avoided the pitfalls of end-state planning. Instead only a framework of streets was established. This however, still left the problem of how new development could be made more urban in character. In existing urban areas the basic principles of development are implied by the buildings and public spaces which already surround a site. These, for example, set the building lines, position, height and massing of new development and thus its contribution to the public realm. However in an area like Hulme where no built context existed it was necessary to create it through a design guide.

The Hulme guide (Baker & Rudlin, 1994) contains ten core principles which are developed into fifty-three guidelines. These are stated in simple but specific terms such as "all streets should terminate in other streets". The guide goes into far more detail than is possible through traditional planning control and could only be enforced because the council had land ownership and grant-making as well as planning powers. It was initially seen by many developers as over-prescriptive and thus a disincentive to development. However the experiences of implementing it have shown this not to be the case. The guide, for example, says nothing about the architecture of buildings, the materials used or their elevational treatment, all areas normally of concern to development control planners. It establishes instead an envelope into which buildings must fit in terms of their position, height and orientation. This allows more freedom of design and detailing than would be the case in traditional development control: as testified by the very wide variety of traditional and modern buildings that have been developed in Hulme.

Similar approaches have been adopted in many continental cities and by the New Urbanists in the United States as illustrated in the work of Duany and Plater-Zyberk (1991). They have developed a system of urban ordinances and codes which have come very close to recreating traditional urban form. As they state "...In a town built without the benefit of centuries or a diversity of founders, the codes encourage variety whilst ensuring the harmony required to give character to a community".

This method does involve the creation of a master plan but only to illustrate the way that the settlement might develop and to determine the location of the center and sub-centers as well as the network of streets. The master plan is then developed into a street plan showing a hierarchy of different streets as well as the building plots which are small enough to ensure that buildings face onto the street. Each of the streets is then developed as a section showing the width between building lines and the character of each space. The next stage is to

develop a regulating plan which designates each building plot for a particular type of development. This does not refer to the land use of the site but to the form of development, its height and position. A series of detailed guidelines are then set out in a set of graphic codes which specify everything from the design of streets to the height, massing and position of buildings down to the detailed design and materials to be used. These codes are presented as matrices so that each street and building type can be related to the different areas designated on the regulating plan.

This is clearly a much more prescriptive process than the Hulme guide to development but nevertheless very different to the traditional master plan, which prescribed what would be built where and how it would look. The Duany Plater-Zyberk approach by contrast creates a framework which can be developed gradually by a wide range of small developers over a number of years. Its strength in the US has been that the plan and code is developed in close partnership with the local community.

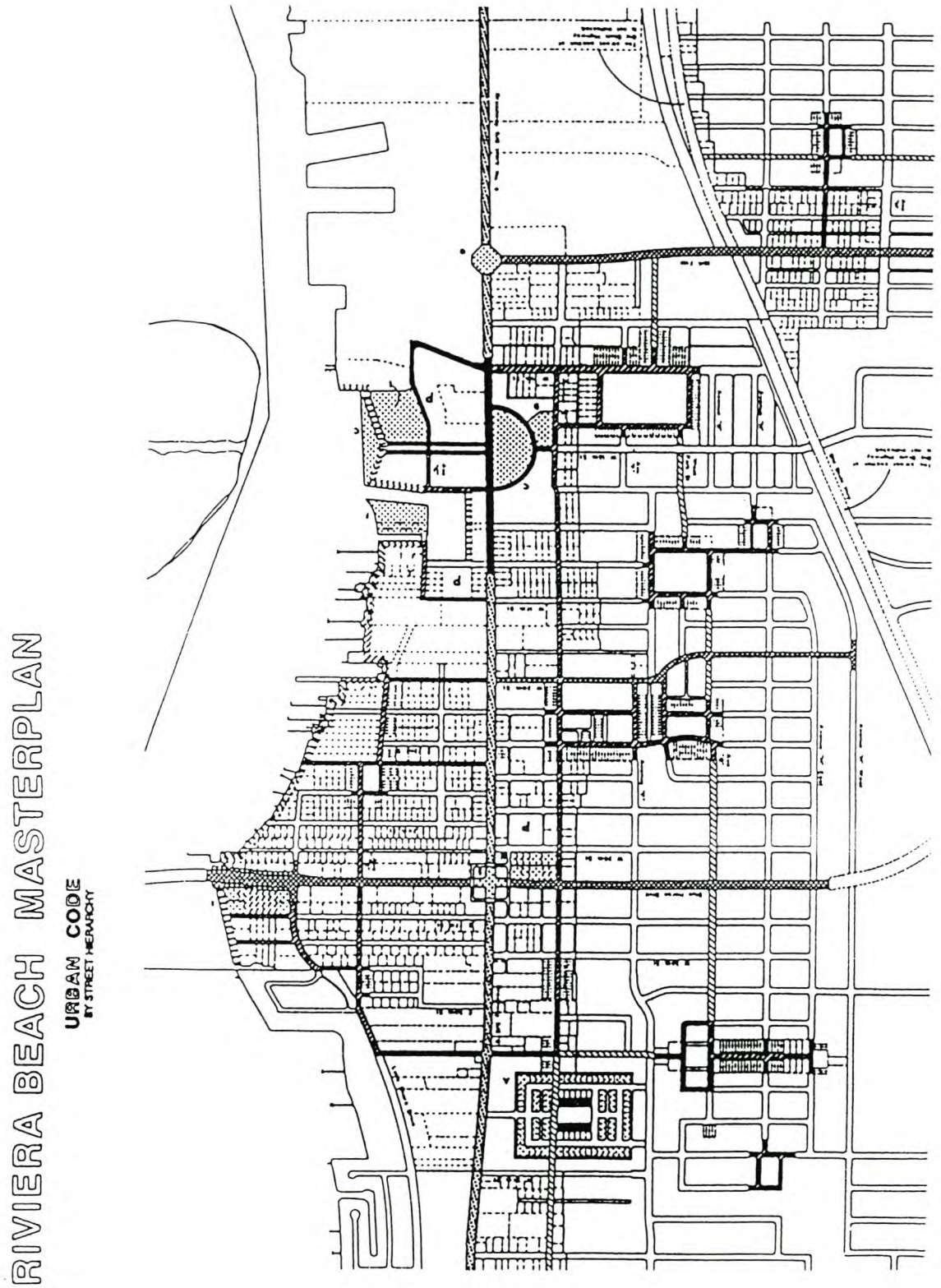


Figure 34: Riviera Beach masterplan (Katz,1994:141).

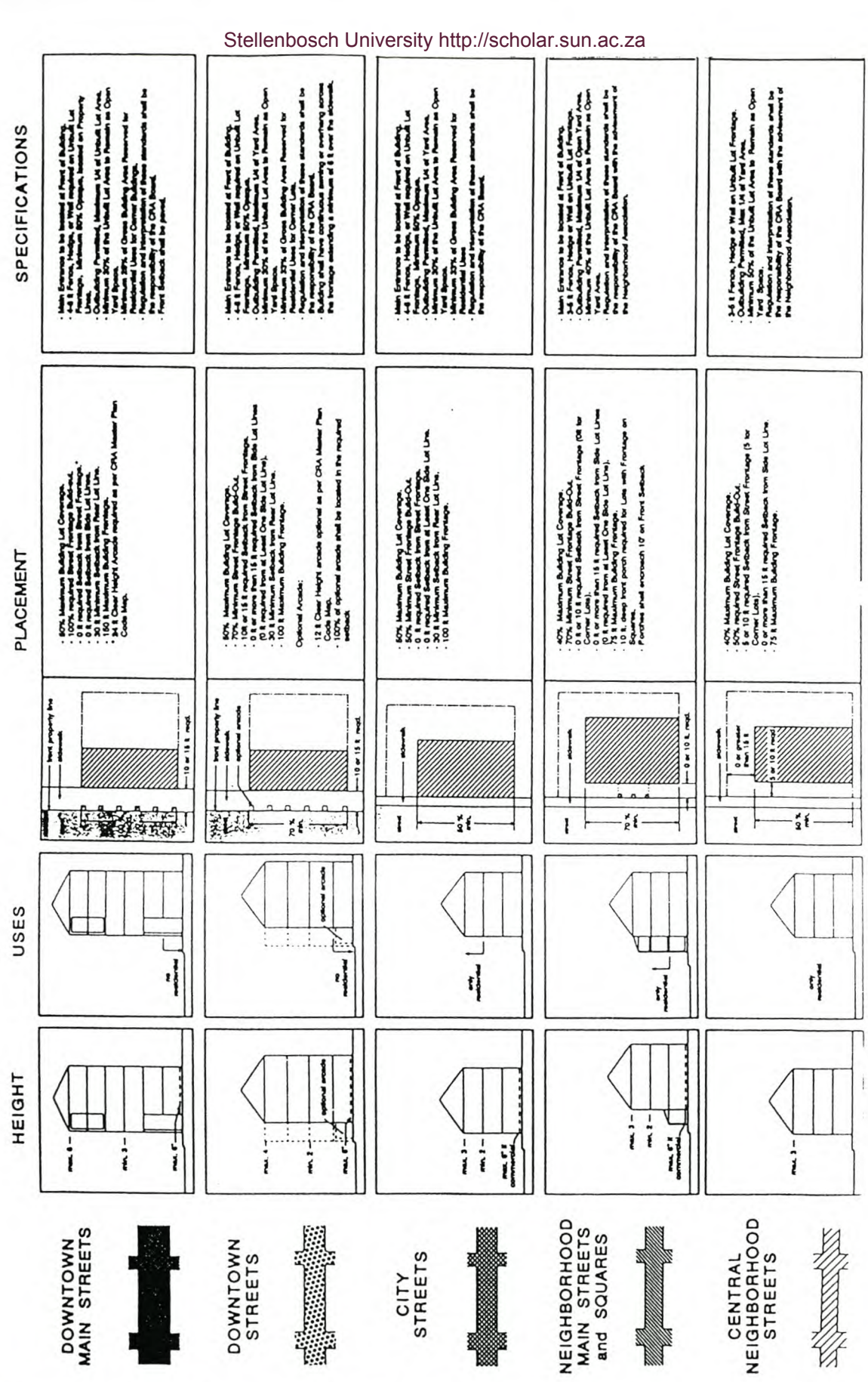


Figure 35a: Riviera Beach urban code (Katz, 1994:141)

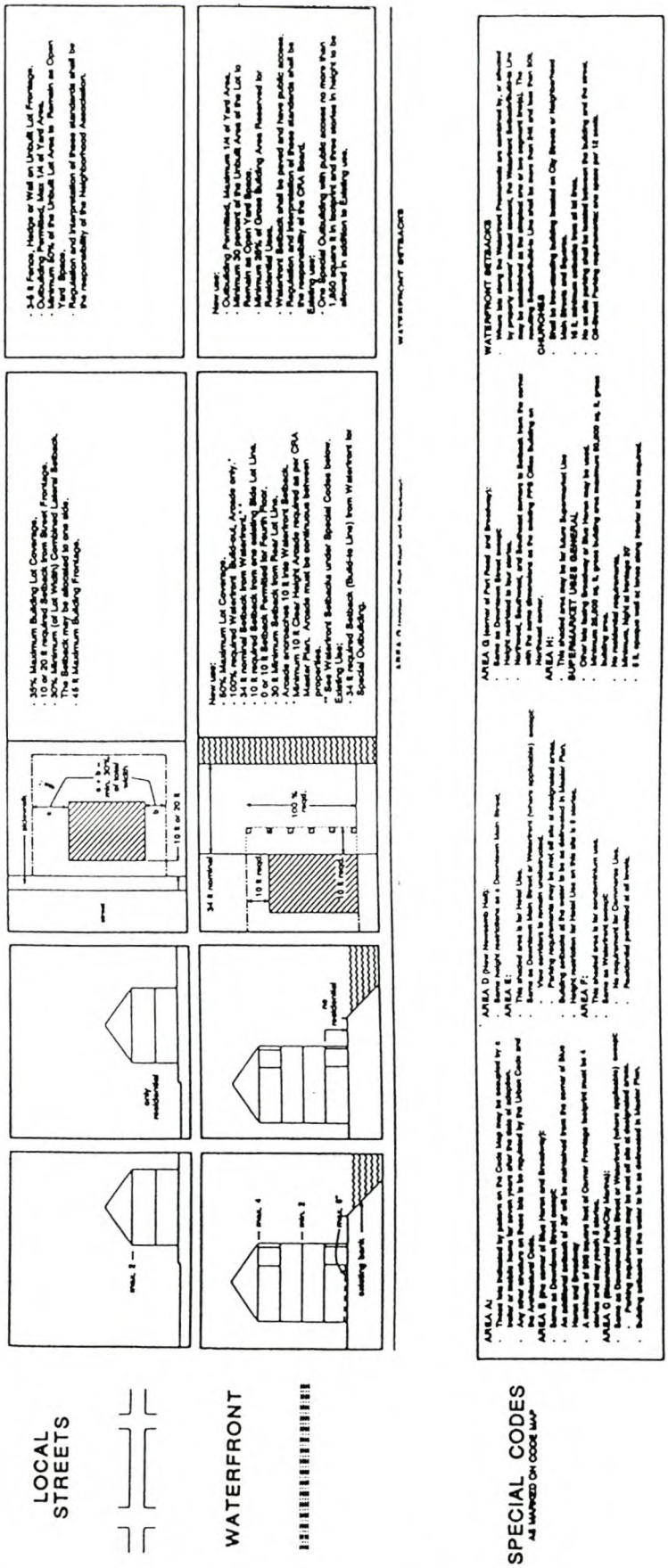


Figure 35b: Riviera Beach urban code (Katz, 1994:141) (continues).

According to Rudlin & Falk,(1999:241) the use of design guides could play an important role in creating a new role for planning. A number of places in the UK are currently working on design guides or codes and English Partnerships have recently commissioned a guide to influence all of the schemes in which they invest.

- Planning with the community

There has been a tendency over the last thirty or so years to suggest that the solution to the urban ills is to wrest planning controls from the planners, politicians and architects and to vest them in the local community. It is local people, after all who have to live in the area and who know it best. Why should they not be the ones to shape the way it is planned and developed? Rudlin & Falk (1999:243) have indeed argued that organic urban development and character grows from rootedness in a locality. Is it not therefore more likely to emerge from the local community than from professionals? For all of these reasons and more it is vital to create a central role for the community in the planning of urban areas. It should not however be assumed that this alone will create quality urban development. As has been discussed, many community groups given the choice will opt for suburban designs. Local people have limited knowledge of what is possible or of experiences elsewhere and will resist certain types of socially valuable development (such as social housing). As Cowan (1995) argues in his manifesto, the solution is not to abdicate responsibility by leaving everything to the community but to develop collaborative ways of working which include professionals and developers alongside the community. By using simple models which allow people to visualize and respond to their environment in conjunction with design guides and briefs, the enormous potential to rehumanise the planning of urban areas and to reawake the "evolutionary" process of urban development may be facilitated.

According to Galehouse (1999:57) in contemplating the future, today's planners and designers are seeking both formula and form. The New Urbanism – arguably the most significant trend of this decade, which originated in the U.S.A. – focuses on specific spatial forms as a fundamental organizing principle. As a contemporary redefinition of historical physical design principles, the New Urbanism emphasizes development of pedestrian-orientated neighbourhoods and management of the automobile. However, a single formula for the design of future communities is not the answer. Some residents in Disney's new town of Celebration, Florida, for example, planted pink flamingos in their yards in reaction to the almost obsessive degree of architectural control in that new urbanist community.

Katz (1994) describes the New Urbanism movement and analyses projects done in accordance with this new philosophy in planning. In Elizabeth Moule and Stefanos Polyzoides's essay (in Katz, 1994:xxi-xxiv) they explain the use of the street, blocks and buildings to control the urban form. The form of the New Urbanism is realized by the deliberate assembly of streets, blocks and buildings. In the American urban tradition, the cutting of a grid is the first presence of urban structure in the landscape. In this act of making a place, space is allocated for both public and private use – for buildings and for open spaces. Shaping this void in the city is an act of democratic responsibility. A plan is laid down by a governing body regulating private and public initiative in the construction of its parts. Public bodies, citizens and entrepreneurs slowly generate streets, squares and parks. Single buildings incrementally introduced into blocks eventually determine the character of the open spaces. "It is at this most elemental scale, every day in a myriad of fleeting and poignant moments, that architecture and urbanism define each other".

Katz (1994:xxi) is of the opinion that this very simple American city-making model has been virtually abandoned in recent years. For the last half century, the building of the public realm has been handled with little regard for those it serves

and for the quality of life that it generates. Increasingly, architecture has become the instrument of excessive self-expression. Individual buildings are often conceived as solely private, self-referential objects incapable of generating the public realm. Conversely, our public regulation system of zoning that controls the growth of the city has become overly verbal and complicated and incapable of accurately guiding physical form (especially because everything is negotiable).

He continues to say that zoning conflates issues of use, density and form to such an extent that it has spawned the unpredictability and visual chaos typical of the American city. Moreover, transportation-dominated infrastructure engineering has so preferred the accommodation of the car over human beings, that the intended users of the public realm have been driven out. What many confuse as an unregulated and unfriendly urban landscape is actually the result of wrongly coded and uncritical design.

5.2 The New Urbanism view

According to Katz (1994:xxii) the New Urbanism seeks a fresh paradigm to guarantee and to order the public realm through individual buildings. Buildings, blocks and streets are interdependent. Each one contains to some degree the ingredients of all the others. Any decision to design streets in a particular manner seals the formal fate of blocks and buildings. Blocks of a specific character determine correspondent streets and buildings. Buildings of particular qualities dominate the blocks that contain them and the streets that surround them. He stresses that the matrix for addressing the totality of street, block and building principles of the New Urbanism is design – not policy planning – and amounts to an aesthetic position. But this position is not about the definition of style, particularly revivalist style. Nor is it about diminishing design freedom. Instead, it is a method of design that is rooted in first causes and historical precedent. It is an attitude of expression that values the cultural variety inherent in climatic, social, economic and technical difference. It is also a professional ethic that

stresses the integration of all architectural, engineering and design disciplines, the active collaboration among their practitioners and the participation of the public in the design process.

Above all it is about ensuring that there is a public realm. "...A city is a human artifact which is a collection of places and things. It is what we are born into and what we leave behind. What we hold in common is not only that which we share with the living, but that which we share with those before us and those after us" (Katz,1994:xxii). The city is therefore based on both permanency and change. Furthermore Katz contends that, an accessible (socially and physically) and truly shared place can be guaranteed at the most elemental scale through the following urbanist principles. These tenets prefer the human scale over that of the car, balance private interests with public interests and employ simple and physically determined methods over those that are complicated and solely legal-minded.

The New Urbanism sees streets not as dividing lines within the city. They would be communal rooms and passages. The architectural character of streets would be based on their configuration in plan and section. Building heights are to be proportionally related to right-of-way widths. The number of traffic lanes would balance vehicle flow and pedestrian crossing considerations. Shifts in scale within street sections would be accomplished by the design of the landscape, building edges and other vertical streetscape elements. This approach is in contrast with the development approach, driven by profit, mostly used in South Africa for example Sandton.

The principles of the new urbanism view are according to Katz (1994:xxiv) as follows: Blocks form the basic determinant of both the building fabric and the public realm of the city. A versatile, ancient instrument, the traditional block allows a mutually beneficial relationship between people and vehicles in urban

space. Five aspects of blocks are now discussed in detail, namely size, configuration, streetground, streetwalls and parking.

- Size:

  Blocks are to be square, rectangular or irregular in their shape. In their best historical dimensions, they vary between a minimum of 80 and a maximum of 200 meters. This dimensional range allows single buildings to easily reach the edges of blocks at all densities. It also forces parking to be located away from the pavement (sidewalk), either underground, in the middle of the block or in the street.

- Configuration:

  Independent of shape, city blocks are to be "lotted" so that all of their sides can define public space. A variety of widths and depths of individual lots determine the range of building types and densities that will eventually establish the intended city fabric. Initial "lotting" should plan for this. Alleys should absorb parking and servicing loads and allow the outer faces of blocks to become more intensely pedestrian.

- Streetground:

  At its perimeter, each block is to be divided into parkway, pavement (sidewalk) and setback. Within each block, lobbies, major ground floor interior spaces and public gardens of all kinds and sizes are to be understood as an extension of the public space of the city.

- Streetwalls:

  The predominant visual character of all built fabric depends on several attributes of building envelopes: Their height, mandated setbacks and projections define the enclosure of the street. Their maximum width along with their height define a building's mass. Setback lines and the percentage build-to at their edges establish the fundamental rhythm

between open space and built form on each block. Threshold elements at the setback line, such as arcades, porches, stoops, stairs, balconies, eaves and cornices, loggias, chimneys, doors and windows, are the means by which buildings meet with and determine the life of the street.

- Parking:

  The omnipresence of cars within the public realm threatens the vitality of cities. Accommodating the pedestrian is the first order of priority for parking. Cars are best accommodated in the middle of blocks or underground. Parking garages are acceptable as long as their ground floors at the pavement (sidewalk) are occupied by pedestrian-related uses. Parking garages are to be regular buildings and, as such, need significant public faces and the built-in spatial redundancy necessary for a future use other than parking. Where parking lots are inevitable, they should double up as significant public gardens.

Buildings are the smallest increment of growth in the city. Their proper configuration and placement relative to each other determines the character of each settlement.

- Use:

  Neither of the two opposing extreme views of architectural use put forward by the Modern movement – functionalism and universal flexibility – adequately addresses the making of a city or town. They have resulted in exclusive zoning and the fragmentation and disconnection of parts of the city from each other. Buildings should be designed by reference to their type, not solely their function. This allows for some changes in use and for multiple adaptations over time without compromising a building's form or rendering it obsolete. This is also critical from an environmental point of view. Building types should be organized by reference to dwelling,

employment or institutional first uses. Their definition is based on their common architectural ingredients.

- Density:
  Floor Area Ratio (FAR) zoning regulations are abstract and favour the design of buildings as singular objects. They should be replaced with building envelope guidelines that link entitlements with predictable physical and architectural definitions of the public realm. Density regulations should be stated independently of building use and parking. Parking requirements should be established on a neighbourhood and district basis as opposed to building by building. They should be phrased by their intended architectural and urban consequences, not just numerically.

- Form:
  There exist two kinds of buildings: fabric and monumental. Fabric buildings should conform to all street and block-related rules and be consistent in their form with all other buildings of their kind. Monumental buildings should be free of normal constraints. They can be unique and idiosyncratic, the points of concentrated social meaning in the city.

Specific street, block and building design rules for public or private developments should be typically designed and presented in the form of a code. These codes are to be simply written and illustrated. They should be brief and intensely physical in their prescriptions. Their content amounts to a covenant among the owners, designers and users of particular projects. Eventually their individual interests and actions will incrementally generate the public realm.

The judicious application of codes may result in a diverse, beautiful and predictable fabric of buildings, open space and landscape that can structure villages, towns, cities and, indeed the metropolitan region. Architecture and

urbanism should not be separate; nor should formal, social, economic and technical/functional issues be considered in isolation.

The process of "coding" operates fully within the American urban tradition of safeguarding the public realm while allowing significant freedom for the designers of individual buildings. Katz concludes by noting that it is the balancing of such public and private interests and concerns that the future quality of life in the American city lies, with possible application in other countries.

These principles of the New Urbanism movement as related by Katz (1994:xxiv) form a very important guideline along which to direct future developments. These are not only principles of urban design but also give a more clear indication as to how to approach the development of a community and how to translate the principles into physical reality.

Many difficulties are encountered when trying to direct urban form by using control mechanisms. As seen in this chapter in recent years new approaches towards urban design and development have tried to create sustainable communities and to correct past mistakes, for example the New Urbanism movement. In the next chapter some of these ideas will be tested in a case study of a CBD situation in Durbanville, Western Cape, chosen because of the diversity of activities and historical value of the area.

CHAPTER 6
THE PRACTICAL USE OF CONTROL MECHANISMS

The evaluation of an existing urban area in terms of the control mechanisms that apply to that area may be done to determine the development potential of the area. In order to create a better urban environment different control mechanism scenarios can be applied to the area, to give an idea of the possibilities that exist for development in the area.

Rudlin and Falk (1999:181) cite the recent interest in urban capacity studies as having created a new role for urban design. The design exercises below in Figure 36 are from the urban capacity study undertaken by Llewelyn-Davies for the London Planning Advisory Committee. This study identified potential development sites around public transport nodes before assessing their capacity by applying a series of design scenarios. The first applied existing planning policies while the second and third progressively reduced parking provision to create a more urban development form. This had the result of doubling the capacity of the sites and also improved both their contribution to urban form and the value of the development. This technique is important because it treats urban design not as an aesthetic side issue, but as something of relevance to mainstream planning policy.

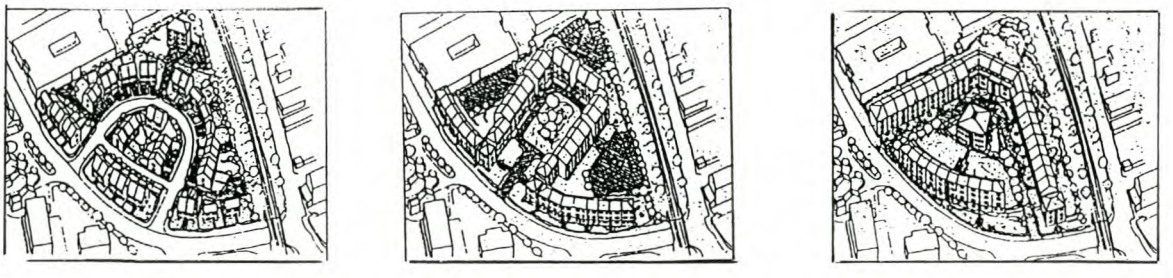


Figure 36: London Urban capacity study by Llewelyn-Davies (Rudlin & Falk, 1999:181)

The Durbanville Municipality in the City of Tygerberg area of the Western Cape has an urban design framework for the Durbanville Central Business District which was drawn up by the Planning Partnership in 1999. This document however is not legally enforceable and only gives suggestions along the lines development should be directed and as to what type of development should be encouraged. The following case study uses this document as a basis for examining and suggesting different development scenarios and the use of different control mechanisms.

6.1 The Durbanville Urban Design Framework

The Durbanville Central Business District (CBD) is situated in the northern part of the City of Tygerberg. It serves the surrounding residential area and the rural hinterland to the north. After having experienced a decline in growth with the development of the Tygervalley Shopping Centre, it has recently shown an economic rejuvenation and has since attracted new shopping, office and high density residential developments. This has set it on a new growth path. The attractive rural and peripheral metropolitan setting near Cape Town continues to identify Durbanville as a preferred medium and high income residential urban settlement.

A planner at the Durbanville Municipality said (Leon Myburgh, 13/09/2001) that one of the main objectives of the Municipality's Planning Department was, "to encourage development without changing the character of Durbanville". One of the major implications of this statement is that the Durbanville Municipality will of necessity have to disregard many of the development suggestions contained in the Metropolitan Spatial Development Framework (MSDF) (Cape Metropolitan Council, 2000:13) in favour of more stringent policies with respect to views to protect the character of the Durbanville. An example is the limiting of the height of building along Durban Road, a main arterial, to preserve views over the

mountains, even though the MSDF identifies Durban Road as an activity corridor along which higher buildings would be encouraged.

The goal of the Urban Design Framework is to realise the inherent potential of the area, to preserve and reinforce its unique character, and to formulate an implementable vision for the future of Durbanville CBD. This case study focuses on a small, central area in the CBD with a unique character and which comprises a mix of land uses with the potential for more development.

Currently the Durbanville CBD experiences numerous urban problems that include badly managed parking, uncoordinated development, a general lack of urban design and increased traffic volumes. If proactive steps are not taken, Durbanville could lose its unique character. These problems are a result or product of the lack of an integrated planning approach to guide the renewed growth in the CBD and surrounding residential areas. Current development pressures in the surrounding area will inevitably compound these problems if the present situation continues (Planning Partnership, 1999:2).

6.2 Design principles

The following seven principles have been accepted as forming the basis for the Durbanville CBD urban design framework (Planning Partnership,1999:4):

- Retain and promote **human scale** to enhance village character.
- Retain and improve public and private **open space**.
- **Provide parking** in a manner to the maximum allowable bulk (1.8) without destroying the village character of the CBD.

- Create **pedestrian routes** and linkages to improve accessibility across the CBD.

- Create a **people friendly** environment with a distinctive urban image **(sense of place).**

- Organize the **public realm** according to a **hierarchy** of spaces, in order to improve the **legibility** of the CBD.

- Create a **balance** and synergy between the historical **village elements** and the **activity** generating development.

These principles were decided on, by the Planning Partnership, after the careful evaluation of the situation in Durbanville and the determination of the needs of the community.

6.3 Analysis

6.3.1 The study area

The location of the study area is indicated in Figure 37. It is bounded by Wellington, Oxford and Church Street and is almost rectangular in shape.

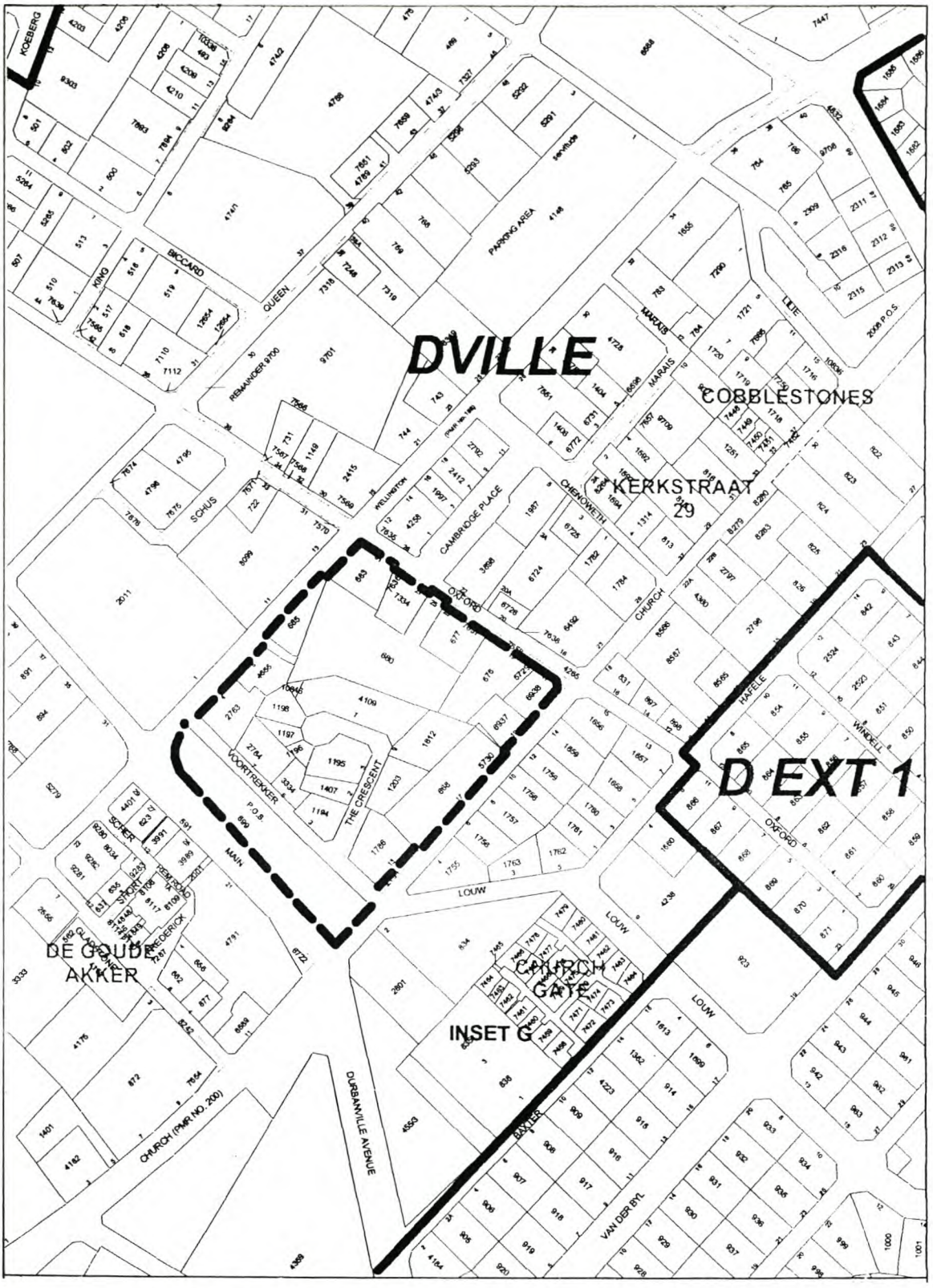


Figure 37: Location of the study area

The study area consists of the following erven with the following zoning according to the Town Planning Scheme of the Durbanville Municipality (see Table 1):

Table 1: Erven and zoning of the study area

ERF	ZONING
676	General Business
677	General Business
680	General Residential
683	General Business
685	Local authority
6938	General Business
6937	General business
7334	General residential

According to the Town Planning Scheme the following restrictions apply to the study area (Table 2):

Table 2: Restrictions according to zoning (Town planning scheme of Durbanville, 1995:38-39)

GENERAL RESIDENTIAL ZONE

USE	COVERAGE	BULK	MINIMUM SITE SIZE	PARKING
Flat	30%	0.75	1000 m²	1,5 per unit
Institutional Building	25%	0.75	2000 m²	-
Licensed hotel	25%	0.75	4000 m²	1 per 2 bedrooms

				plus 20
Place of instruction	30%	0.75	2000 m²	1 per 60 m²
Residential building	30%	0.75	2000 m²	1 per 2 bedrooms
Social hall	50%	0.75	-	-

GENERAL BUSINESS ZONE

USE	COVERAGE	BULK	MINIMUM SITE SIZE	PARKING
Business	80%	1.8	-	1 per 25 m²
Flat (above ground floor)	50%	1.0	1000 m²	1,5 per unit
Licensed hotel	80%	2.4	-	1 per 2 bedrooms plus 20
Place of assembly	80%	1.6	-	1 per 20 seats
Place of amusement	80%	1.6	-	-
Place of instruction (non residential use)	80%	1.6	-	1 per 60 m²

No restrictions for Local Authority specified.

The maximum height allowed in the study area is 3 storeys, no definite height in metres is specified which is sometimes abused by developers (Town Planning Scheme, Durbanville Municipality).

6.3.2 The existing situation in the study area

The Rust en Vrede complex is situated off Wellington Road in the centre of the study area (Erf 680). This has national monument status and the activities that are housed in this complex are of a cultural nature. The main building contains a tea garden, pottery studio and pottery museum as well as an art gallery. The surrounding gardens are not utilized to their full potential, and the informal parking areas in the vicinity detract from their value.

The Rust and Vrede node includes the area on Oxford Street that is occupied by historic and other buildings worthy of conservation. Consequently it has been resolved that an Urban Conservation Area be established in accordance with the National Monuments Act for the area, as a whole. The designated area includes part of the study area – erven 677; 680; 683; 7334.

The rest of the area is characterized by a mixed use development, an old single residential house and office buildings as well as parking areas.

Photo 19: Rust en Vrede historic building, Durbanville – scale of current gateway is not impressive.

Photo 20: Historic building (Erf 7334) that is part of the proposed urban conservation area, Oxford Street.

Photo 21: Rust en Vrede gardens – looking towards Church Street.

Photo 22: Semi – communal parking behind buildings.

Table 3 lists the particulars of the erven and current controls.

Table 3: Existing coverage and bulk

ERF	SIZE OF ERF (m^2)	FOOT PRINT (m^2)	SURFACE OF BUILDING (m^2)	COVER-AGE (%)	BULK
676	2613	717,3	2152	27,5%	0,82
677	2115	776	2212	36,7%	1,05
680	7822	1104	1104	14,1%	0,14
683	2362	1299	2626	55%	1,11
685	1360	-	-	-	-
7334	1284	206	206	16%	0,16
6937	1100	245	735	22,3%	0,67
6938	1021	285,7	857	28%	0,84

The provision of parking also greatly determines the development potential of a site. It places constraints on the possible layout to accommodate the amount of parking that is specified by the local authority. The ideal is to provide group parking for a certain area and not per individual site. In so doing it is believed that a more unified design will be encouraged. This manner of parking provision was followed to a certain extent in the study area.

Developers always favour off-street parking or the provision of parking in front of a business. They claim that it is very important for customers to immediately see the parking provided for them to encourage them to stop and shop. The local authority on the other hand would like to see a more continuous streetscape/ streetwall with parking provided behind buildings. This results in a more pedestrian friendly environment and creates a better public realm.

A balance should be found between the above mentioned methods of providing parking, to encourage developers.

Table 4 shows the amount of parking provided in the study area. The parking varies between off-street parking, parking behind buildings, parking areas alongside the street and undercover parking.

Table 4: Provision of parking

ERF	EXISTING PARKING
676	27
677	Undercover parking + 5
680	27
683	Undercover parking + 5
685	21
7334	Private (1)
6937	27
6938	31

(The existing parking is taken to be the parking required by the local authority's policy towards the provision of parking and varies from the Town planning scheme and depends on a specific development.)

The buildings along Oxford Street have the potential to create a well defined streetscape but, this effect is not obtained because some of the buildings are set-back from the street to accommodate parking. The buildings also create a sheltered space behind them although the edge is very permeable. At the moment this space is mostly used for parking and circulation.

The space referred to above continues through into the garden of the Rust en Vrede complex. Rust en Vrede is a focal point in the study area and the focal

point in the cultural precinct. Presently, edge definition on Wellington Road is too open and doesn't form a gateway to emphasize the importance of the Rust en Vrede complex.

Photo 23: Paved open space in front of Rust en Vrede – it hides the beautiful garden, Wellington Street.

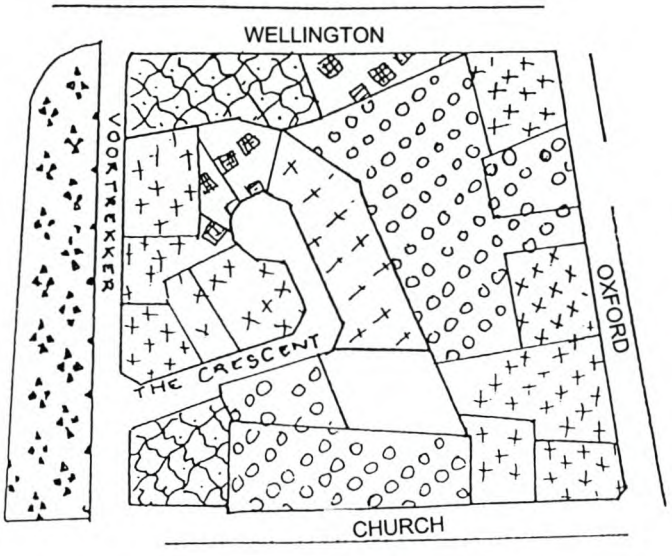
Photo 24: Corner of Wellington and Oxford Street – well defined

Photo 25: The view down Oxford Street, Durbanville – no continuous streetfront.

Photo 26: Mixed use development in Oxford Street, Durbanville. Cars parking in front of buildings hamper pedestrian movement.

Photo 27: The view down Church Street, Durbanville –parking allowed in front of the buildings.

The existing zoning (Figure 38), height analysis (Figure 39), land use (Figure 40) and massing of structure (Figure 41) are depicted in the following maps adapted from the Durbanville CBD urban design framework (Planning Partners, 1999):



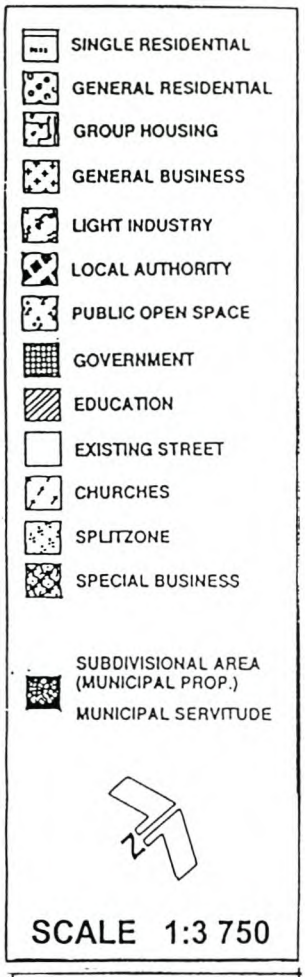
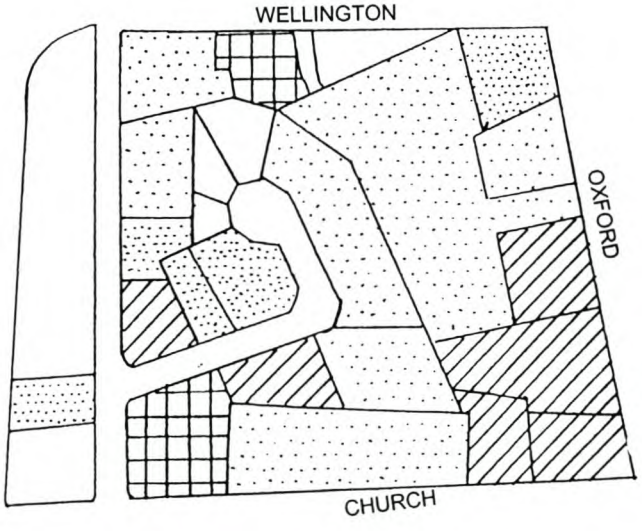


Figure 38: Existing zoning



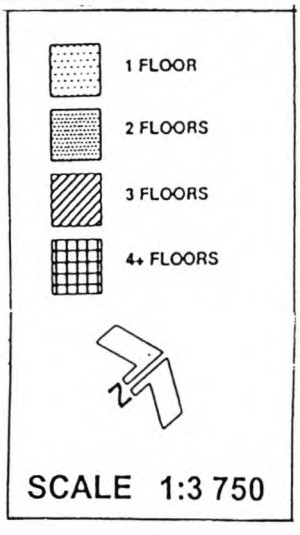


Figure 39: Existing height analysis

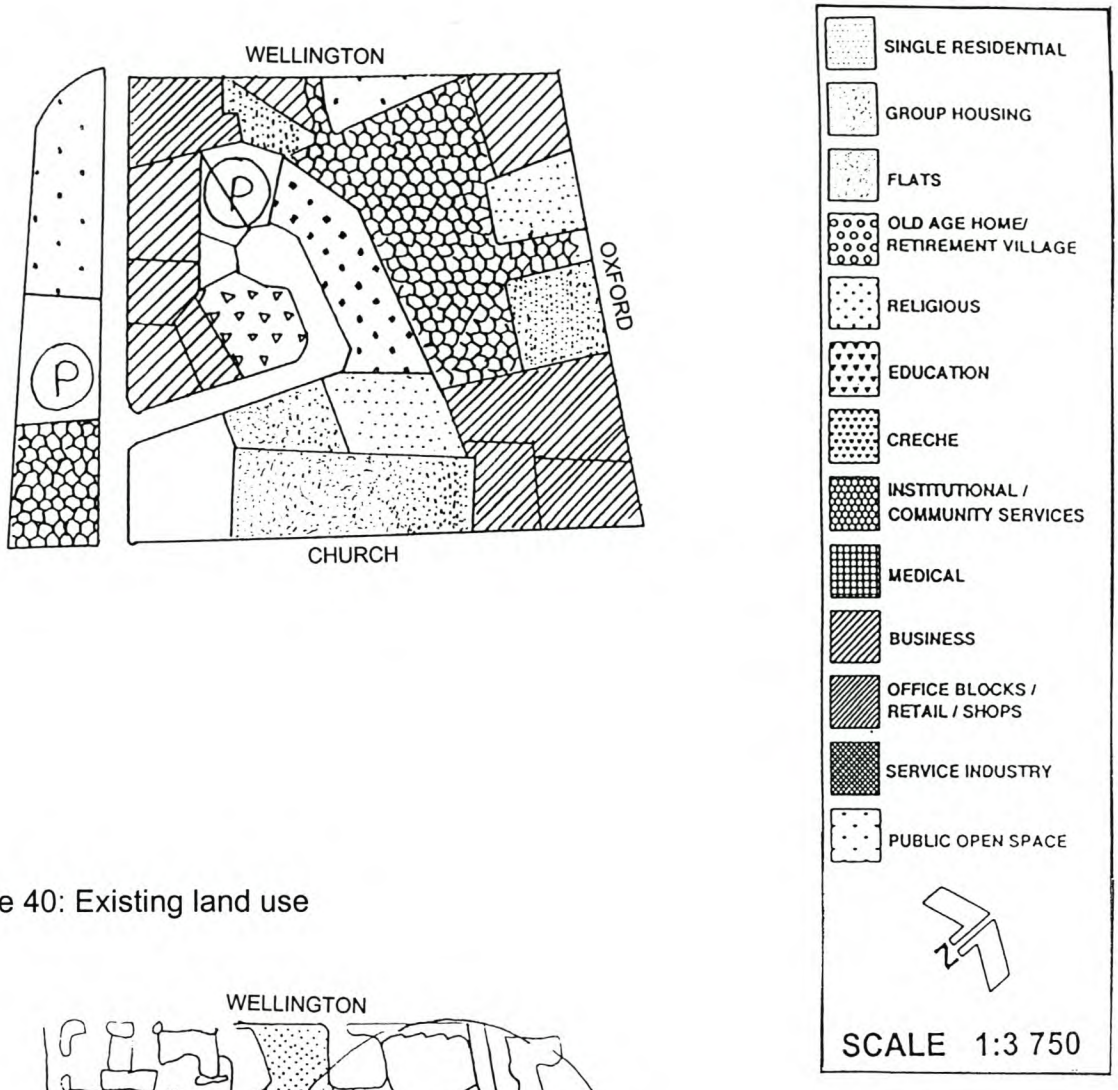


Figure 40: Existing land use

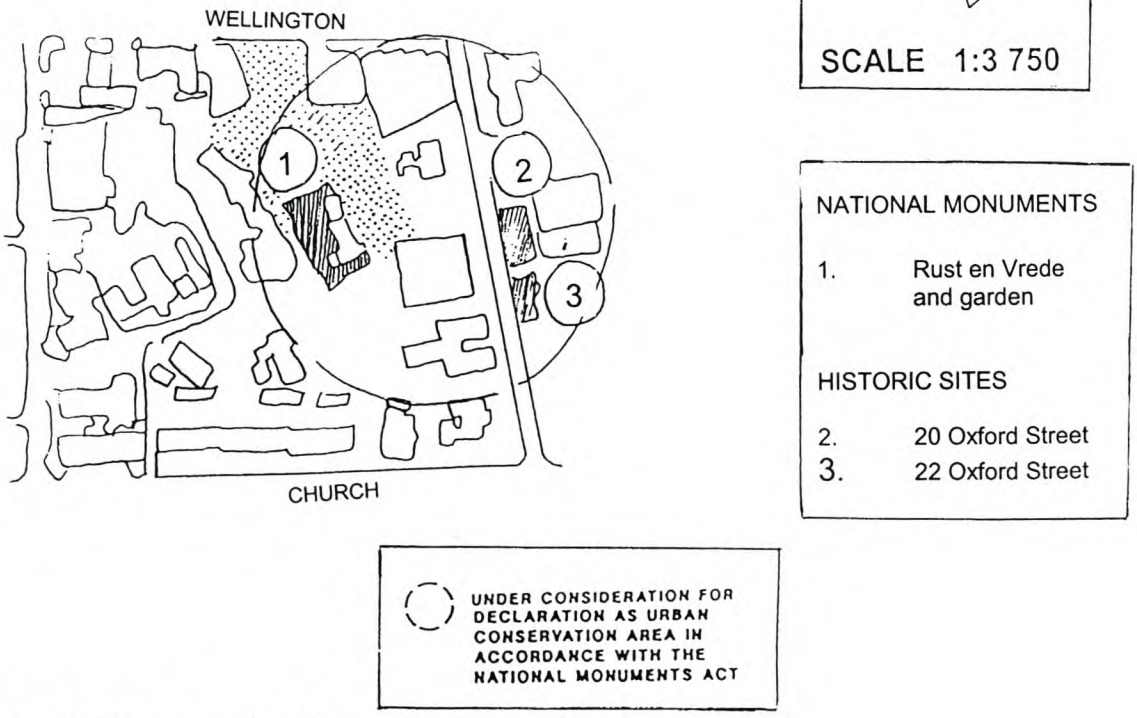


Figure 41: Existing massing of structure

6.4 The potential of the study area

Table 5 compares the existing bulk and coverage with the allowed bulk and coverage in the study area. It is clear that there is potential for more development. A limiting factor that must be taken into consideration is the increased provision of parking commensurate with the increase in floor space, especially in business and office buildings.

Table 5: Comparison of bulk and coverage

ERF	EXISTING COVERAGE	ALLOWED COVERAGE	EXISTING BULK	ALOWED BULK
676	27,5%	80%	0,82	1,8
677	36,7%	80%	1,05	1,8
680	14,1%	30%	0,14	0,75
683	55%	80%	1,11	1,8
685	-	-	-	-
7334	16%	30%	0,16	0,75
6937	33,4%	80%	0,67	1,8
6938	42%	80%	0,84	1,8

Figure 42 shows the existing bulk and coverage of the buildings in the study area and Figure 43 shows a simple 3 dimensional view of how the study area would look if the allowed coverage and bulk is taken up with the height limit at three storeys.

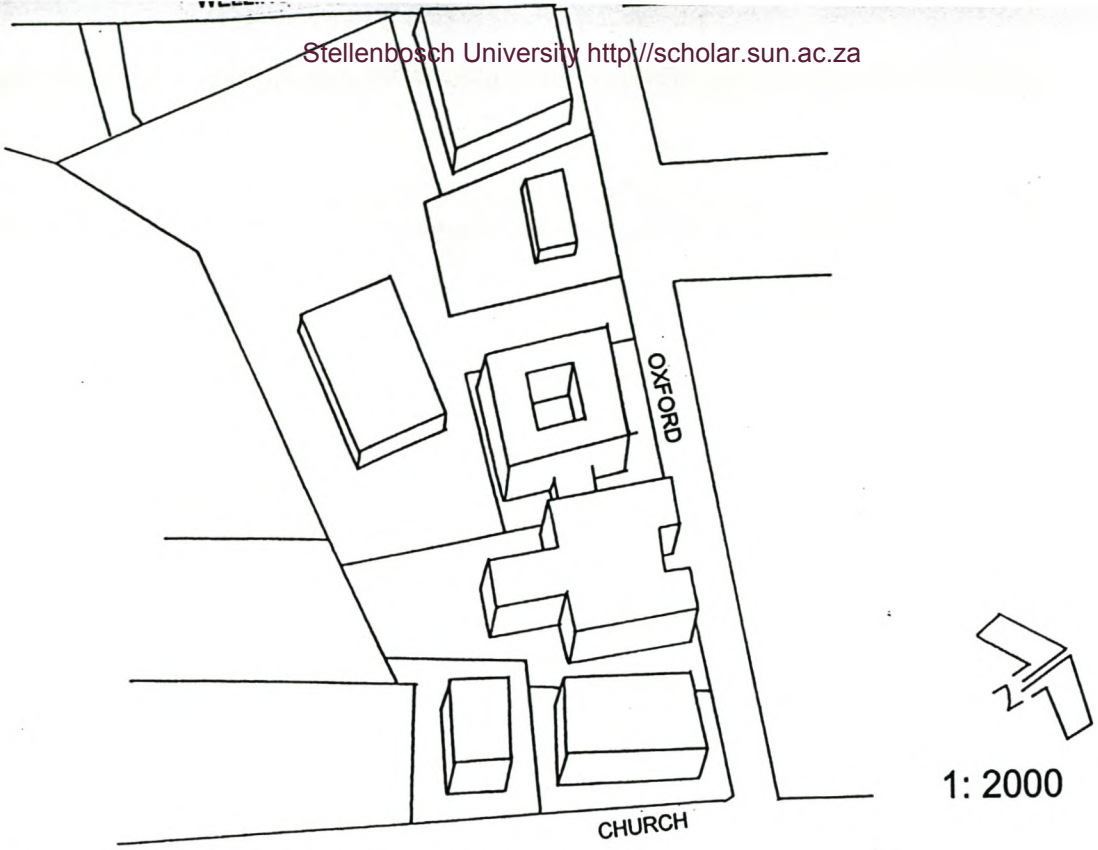


Figure 42: Existing bulk and coverage.

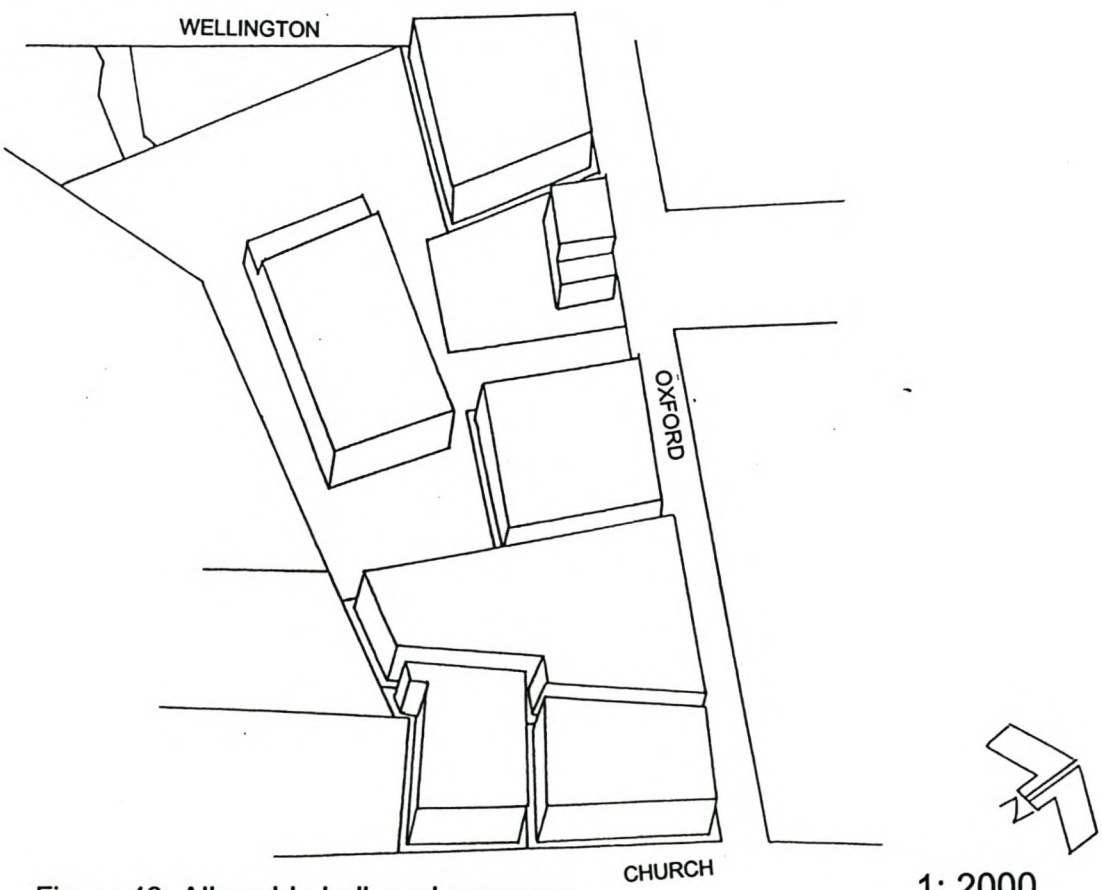


Figure 43: Allowable bulk and coverage.

6.5 Design suggestions

The study area consists of a variety of land uses and different elements, including commercial, office, residential, historical buildings and open space. In the auther's opinion, this fact could promote an economic and cultural vitality in the area and create a safe, pedestrian friendly environment in the town centre, if these elements are properly linked.

The control mechanisms in the study area allow for a certain degree of flexibility and there is still a lot of undeveloped potential. The coverage and bulk allowed will lend itself to a close grained, centre of town development if developers would build to the maximum bulk and coverage allowed. It is difficult to influence developers to take up all the allowed bulk and coverage because this is usually determined by market forces and the developer's own vision.

The historical buildings in the study area contribute to the uniqueness and openness of the development. The Rust en Vrede complex with its garden is the centre and focus of the study area. The contrast of the close grained development around the Rust en Vrede complex will serve to enhance the peaceful quality of the gardens.

Parking provision in the area should not be provided individually for each site but collectively with good linkage to all buildings in the study area. The parking provided should either be at basement level or behind the buildings, landscaped to create a connection with the gardens of the Rust en Vrede complex.

The Rust en Vrede complex should be provided with a proper gateway that will enhance the sense of place and give a sense of arrival for visitors. The garden should be visible and inviting for pedestrians walking along Wellington Street and pedestrian routes should be laid out through the garden to enhance accessibility to other parts of town and specifically the study area.

Based on the design principles in the Durbanville CBD urban design framework noted by Planning Partners (1999:4), and my research in the study area the following control mechanisms might be applied to influence the urban form:

- **Human scale** should be retained to promote the village character of the study area by enforcing a zero-building line on development especially on Oxford and Church Street. Vertical zoning should be used as an overlay zoning for specific sites to encourage continues commercial activity on ground level. This would contribute to a better public realm and shopping experience.

- The improvement of the Rust en Vrede gardens is very important to the success of the area. Although these are municipal grounds, financing the upgrading of the **open space**/gardens might be a problem. Incentives can be used to encourage the other developers in the study area to contribute to the upkeep and security of the garden and in so doing create a better connection between the gardens and surrounding property. Incentives may include less provision of open space for residential use on certain sites. The gardens can then be used as communal open space.

- The municipality should allow **parking** to be provided on a collective basis for the whole of the study area. No streetfront parking should be allowed, as this destroys the village character. Long-term parking for people can be provided at basement level and short-term parking can be provided above ground in such a way that the landscaping creates a park like effect.

- **Pedestrian routes** should be improved through the Rust en Vrede gardens, improving the accessibility across the CBD. The contributions from the other developers in the study area may again be used.

- The Rust en Vrede complex gives the study area a distinctive urban image **(sense of place)**. This building is a national monument that is protected according to law. The municipality should allow the full utilization of these buildings to create a cultural center, and allow the hosting of community events in the gardens. This would also create a balance and synergy between the historical village elements and the new activity generating development.

- Continuous streetfronts that connect with the Rust en Vrede gardens, behind it, through selective openings to create a **public realm** that moves from the busy streetfront into a tranquil open space.

Coherence in design cannot be achieved through a haphazard or piecemeal approach. It is important that the study area be treated as a whole pertaining to the provision of amenities and creating a collective urban image. Katz (1994:xxiv) stressed that blocks form the basic determinant of both the building fabric and the public realm of the city. It may therefore be possible to create an urban environment with coherence in design by focusing on the development of separate blocks while keeping the overall picture in mind.

According to Katz (1994:xxiv) the predominant visual character of all built fabric depends on several attributes of the building envelope. Their height, mandated setbacks and projections define the enclosure of the street. These attributes are enforced by separate control mechanisms in the Town Planning Scheme of Durbanville. Floor Area Ratio (FAR) zoning regulations are also totally abstract and favour the design of buildings as singular objects. The replacement of these separate control mechanisms with building envelope guidelines that link entitlements with predictable physical and architectural definitions of the public realm might help in the creation of a collective and sustainable urban image.

CHAPTER 7
CONCLUSION AND MAIN FINDINGS

The urban designer works within an environment characterized by constraints. Control mechanisms are part of these constraints. They were created out of necessity because the control of the urban environment became strained as cities grew in size. In the beginning control mechanisms regulated the urban environment to create better public safety, this objective evolved to include aesthetics and sustainability of the environment. Controls, however, tended to become standardized and often blindly applied irrespective of changed circumstances and contexts.

As noted in Chapter 1 Kevin Lynch's defined four modes of design action which include: diagnosis; policy; regulation and design (in Punter & Carmona, 1997:83). This gives urban designers a framework within which to work and stresses the connection between the different elements of design. Montgomery (1998:115) states that planners should be careful not simply to accept the apparently dominant or received view of any society's values and ways of life, but instead to seek to cater for diversity of choice. Different societies have different approaches towards the use of control mechanisms, although it is currently held that public participation in the design process is necessary to establish what a community wants from their environment and to formulate appropriate "community driven" objectives.

In South Africa, with its history of apartheid, planning law only partially achieved the idealistic aim of improving the quality of life and welfare of the community. Planning was aimed mostly at control and not towards development. These impediments are now being eradicated and new structures are being implemented (Van Wyk, 1999:6). Serious efforts are now being made to make planning more development orientated and less control orientated by using *inter*

alia the Development Facilitation Act 67 of 1995 (DFA) and Integrated Development Plans.

According to Sternberg (2000:277) urban designers have to work in varied and complex institutions, in the midst of electoral democracy, subjected to varying political and budgetary stresses. They should in response to these challenges pay attention to others' views, engage in give and take, and act as politically astute advocates of ideas that are well founded on substantive principles.

Development or re-development is necessary for a city to grow. Therefore planners and urban designers are sometimes forced to make allowances, which negatively influence the city form, when confronted with proposed developments. Legally in South Africa Town Planning schemes entitle the owner of a property to develop it within the bounds of the control mechanisms laid down in the scheme. The owner can insist on those rights even though what he wants to develop is not aesthetically pleasing or according to the urban design guidelines for an area. The only way that the local authority can intervene is if the developer requires permission for a departure on a proposed development. The local authority can then approve the developers proposal if certain demands are met. These demands can include height, coverage, bulk and even aesthetic aspects of the development.

All the people interviewed (Isalde Du Toit, Leon Myburgh, Chris Mulder, and Anneke Nieuwoudt) were of the opinion that the control mechanisms used in South Africa are not effective in creating a sustainable, aesthetically pleasing urban environment. Local authorities feel powerless against the pressures of developers and bow to their wishes and to the dictates of profit motives, for fear of losing projects.

The influence control mechanisms have on the urban form is sometimes unanticipated. There is no stereotypical "recipe" that can be used to create the

desired urban fabric. Lai (1988:351) stresses that good, imaginative design can never be attributed to regulation alone. Public regulations, including incentives, which can encourage and perhaps foster but cannot act as a substitute for design creativity.

Rudlin and Falk (1999:236) agree with Lai (1988:351) and are of the opinion that we should not make the mistake of believing that there is one correct model for urban areas and that our troubles would be at an end if only we could discover it. According to them the key is to discover the natural process of city building which enables a city to naturally work towards and constantly reshape that physical model to one that best meets its needs.

In the search for solutions planners and urban designers have tended to turn to stylistic or "ideal" environments and attempt to shape behaviour using regulation/control mechanisms for design control. This has tended to result in developments that are more real than reality – hyper-reality. These environments seem to be the popular choice, in that they satisfy the need for escapism, e.g. Century City.

An even more expansive and complete form of design control is evident in planned new communities such as Seaside, Florida, designed by Andres Duany and Elizabeth Plater-Zyberk in the New Urbanism style. According to Katz (1994:xxiv), the guiding principles of the New Urbanism movement focus on the fact that blocks form the basic determinant of both the building fabric and the public realm of the city and that buildings are the smallest increment of growth in the city. Their proper configuration and placement relative to each other determines the character of each settlement. These principles are applied by typically designing and presenting specific street, block and building design rules for public or private developments in the form of a code. These codes are simply written and illustrated and are brief and intensely physical in their prescriptions. Their content amounts to a covenant among the owners, designers and users of

particular projects. The New Urbanism philosophy concludes that the judicious application of codes would result in a diverse, beautiful and predictable fabric of buildings, open space and landscape that can structure villages, towns, cities and, indeed the metropolitan region.

The Planned Unit Development approach, in South Africa, gives local authorities a chance to control development by specifying certain control mechanisms for certain areas and also having a say in the aesthetics of a development. These developments can be evaluated as a whole and in the context of surrounding areas. The approval of these developments is subject to what the local authority deems to be appropriate.

The urban environment should be treated as a whole. Even though development should be evaluated on its own merit it is important to always keep in mind that it is part of the greater environment. Regretably, development of a somewhat patchwork quality is being created in South Africa. Developers are for example creating housing estates of a particular style which, if evaluated separately, may have some merit but if put next to each other, there is no connection and in consequence this piecemeal approach creates a fragmented environment.

The introduction of Integrated Development Plans (IDP's) has given local authorities a powerful tool to help create an integrated environment. However for their successful application the wishes of the community need to be determined and formulated in goals and strategies. Alternatives need to be examined and choices made. In this regard urban capacity studies can be used to evaluate developments and to identify the best development proposal. Urban capacity studies are particularly useful in areas where development has to be intensified without damaging the character of the area. With the technology at hand three-dimensional proposals can be made and presented to the community to make it possible for them to visualize the impact of a proposed development and give them a chance to participate in the development process. This differs from earlier

approaches, based on the ethnocentric beliefs of the authorities and planners themselves, in which decisions were made without consulting the end-user.

The practical use of control mechanisms was illustrated by the urban capacity study done in the Durbanville Central Business District. This study was based on the urban design framework drawn up by the Planning Partnership in 1999, and used the principles identified by them as a framework for recommendations for the redevelopment of the study area. This served to illustrate the process of design where firstly the area was analysed (diagnosis) and the current situation identified. Secondly principles were determined and the current policy was evaluated to ensure the quality of development and management. Thirdly regulations were evaluated and adapted to be able to execute the policy and ensure that the development would proceed according to the principles as determined.

Because the urban form is influenced by so many factors, control mechanisms being only one, there can never be a single simple solution to the problem of influencing or controlling the urban form. Because as Kostof (1991:13) says, "...the city is never complete, never at rest...", we will continue to use control mechanisms in different ways to obtain different objectives.

Although control mechanisms are an important component in regulating and directing land use and urban form, they can if bluntly applied – without regard to context and the specifics of a situation – have extremely negative consequences. To obviate the worst effects of the injudicious use of these mechanisms it is important to establish at the outset the objectives to be reached, or in specific terms the design intention, and to select the most appropriate measures to attain the desired end result.

The introduction of Integrated Development Planning, for example, as a means to achieve a systematic and holistic approach to planning and by association

design also provides the necessary framework within which urban design objectives can be met. Apart from the legal standing of IDP's they embody in their formulation the active participation of all those most directly touched by planning and design: the community at large.

There is a need to create more attractive and responsive environments. To attempt to achieve this by adopting too simplistic stereotypical approaches, as is often the case in current practice, is counterproductive. To avoid the piecemeal application of controls there is a need to review our approach to urban design and to see it in the context of creative community involvement.

Before implementing control mechanisms it is important to establish what the objectives are that should be reached in the urban environment. Principles should be laid down to direct the influence of control mechanisms on the urban form. The principles should embrace all aspects of development. This comprehensive approach is supported by Rowley (1998:154), Greene (1992:177) and Montgomery (1998:103) who, notwithstanding the use of different approaches, list common criteria such as, concerns or principles, qualities and guidelines, or conditions that are necessary for a city to grow into a sustainable environment that can satisfy the needs of its inhabitants.

It can be concluded that by taking into consideration all the aspects of design and control mechanisms mentioned and closely working together with the community, one can again create attractive, responsive and sustainable environments.

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APPENDIX 1

THE INFLUENCE OF CONTROL MECHANISMS ON THE VICTORIA AND ALFRED WATERFRONT

1. Introduction

The Victoria and Alfred Waterfront development, as we know it today, is the result of many year's campaigning and planning. In 1980 Mr Gawie Fagan, one of South Africa's foremost architects and urban conservationist, started the process by proposing the opening of the waterfront to the public and the provision of general public amenities and facilities for small crafts. This was met with much resistance from the then South African Transport Services to whom the area belonged. Cape Town was cut of from its waterfront by a security fence and the whole area was out of bounds to the general public.

Gawie Fagan's proposal was essentially concerned with securing a historically and aesthetically important area for the citizens of Cape Town. In 1983 students of the School of Architecture, University of Cape Town made a proposal for the development of the Waterfront with the focus on the connection between Granger Bay, Victoria Basin, the Foreshore and Cape Town's CBD. Only in September 1991 Cape Town City Council, Transnet and the Victoria & Alfred Waterfront Company signed an agreement enabling Cape Town's historic harbour to be developed for tourism, recreational and residential purposes.

2. Interviews

The following people were interviewed to gauge the opinions of the different parties, concerned with the V & A Waterfront, about the influence of control mechanisms on the development.

- The municipality of the City of Cape Town represented by Mr Stephen Townsend. He was unfortunately unavailable because of previous engagements. Mr Paul Poppadopolus, gave a short interview telephonically in which he stated the councils involvement with the V & A Waterfront (28/01/02).

- Mr. Gawie Fagan, who has the interest of the general public at hart and who is an expert in his field. He has been involved with the Waterfront Development from the beginning and still sits in on the Design Review Committee (29/01/02).

- The V & A Waterfront Company represented by Yulanda Oosthuizen, a city planner (30/01/02).

3. The V & A Waterfront development process

The V & A Waterfront is still the property of Transnet/Portnet this implies that the Town Planning Scheme of the City of Cape Town does not apply to the property. The developers of the Waterfront created a development process, on which the City Council of Cape Town agreed, which helps with the smooth, efficient and sustainable development of the property according to market forces.

It is also of extreme importance to the developers to create a development of the highest standard that is aesthetically pleasing as well as functional.

A Development Framework, which is upgraded every 5 years, is agreed upon by the City Council and this is the basic control mechanism. It is a plan which provides a physical framework for access, movement and parking, for land use, conservation and for the provision of major services. On the basis of this plan more detailed planning of individual areas and sites will follow. These plans indicate how development rights intend to be developed over the next five years.

There are basic permissible development rights granted by the Municipality which are based on the carrying capacity of infrastructure serving the Waterfront, one of which is that only 263 000 m² may be developed.

The Development Framework also contains 8 policies which included objectives that must be attained in the development.

- Urban design and landscaping policy
- Urban conservation policy
- Traffic and transport policy
- Land use policy
- Pedestrian access policy
- Residential development policy
- Services policy
- Subdivision policy

The V & A Waterfront is divided into precincts. Each precinct has a Precinct Plan that must also be approved by the City Council. In these plans more detail are specified for example use, view lines, movement of traffic (pedestrian/vehicular), height as well as parking requirements (how many and where). This creates the framework for more detailed development as contained in the site development

plans and finally the building plans which are all subject to approval by the City Council.

There is a Design Review Committee in place which reviews the aesthetic and architectural value of buildings that are being designed. The committee consist of Louis Carol (GAPP), V & A Waterfront (Pty), Gawie Fagan and Revel Fox . This ensures that the development is of the highest standard.

4. The influence of the control mechanisms

The V & A Waterfront was in the fortunate position to be able to create their own control mechanisms to direct the development. Although all development is subject to approval by the City Council the stringent, general controls of the Town Planning Scheme did not hamper the mixed use development which characterizes the Waterfront. Because the developers take great care in ensuring they create a marketable product, the influence of market forces is very important. The control mechanisms and development process they have created make it possible not to have to develop a certain area in a certain way by a certain time. It is a flexible approach but still it creates a basis from which to work and negotiate.

The historic buildings in the development, gives it a unique appeal. The developers are in constant contact and negotiations with SAHRA to ensure the correct preservation, restoration and re-use of historic buildings. Environmental Impact Assessments are also done to minimise the impact of development.

Urban design is treated as an integral part of the development process and control mechanisms pertaining to it like height and view lines are applied in the early stages of the Precinct Plans.

In the case of the V & A Waterfront, it can be seen that it is important to have flexible control mechanisms in place which direct development. To ensure

One area that still lacks attention is the physical connection between the CBD of Cape Town and the V & A Waterfront. The building of the new Conference Centre and development adjacent to it might be a start to extending a canal from the Waterfront to the CBD.